JPRS 74951

17 January 1980

USSR Report

INDUSTRIAL AFFAIRS

No. 526

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50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO. JPRS 74951	2.	3. Recipient's Accession No.

4. Title and Subtitle
USSR REPORT: INDUSTRIAL AFFAIRS, No. 526

5. Report Date
17 January 1980

6.

7. Author(s)

8. Performing Organization Rept. No.

9. Performing Organization Name and Address
Joint Publications Research Service
1000 North Glebe Road
Arlington, Virginia 22201

10. Project/Task/Work Unit No.

11. Contract(C) or Grant(G) No.
(C)
(G)

12. Sponsoring Organization Name and Address

As above

13. Type of Report & Period Covered

14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)

This serial report contains information on the development and productivity of the automotive and tractor industry; electronic and precision equipment; metalworking equipment; construction equipment and building materials.

17. Document Analysis a. Descriptors

USSR
Automotive Industry
Agricultural Machinery
Construction
Construction Materials
Construction Equipment
Electronics Industry
Metalworking Equipment
Economics

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group 2C, 5C, 13C, 13F, 13H, 13I, 13M

18. Availability Statement Unlimited Availability Sold by NTIS Springfield, Virginia 22161	19. Security Class (This Report) UNCLASSIFIED	21. No. of Pages 62
	20. Security Class (This Page) UNCLASSIFIED	22. Price

(See ANSI–Z39.18)

OPTIONAL FORM 272 (4–77)
(Formerly NTIS–35)
Department of Commerce

JPRS 74951

17 January 1980

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

PROBLEMS OF CONCRETE REINFORCEMENT DISCUSSED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 12 Sep 79 p 2

[Article by A. Alekseyev, Deputy Chairman, Committee for Corrosion and Prevention, VSNTO All-Union Council of Scientific and Technical Societies, Doctor of Technical Sciences: "Save Metal: A Tangible Economic Resource"]

[Text] The construction industry consumes some 20 million tons of metals annually, of which more than one-half is for concrete reinforcement. Savings of such reinforcement will be discussed here.

The combined weight of the annual output of reinforcement is about 12 million tons. The makers of reinforced concrete are familiar with primary metal-saving techniques producing immediate savings of, so to speak, "live" metal. For example rods of designed thickness should not be replaced with thicker rods. Stronger steel grades should be used, So-called lightweight concrete, which reduces the weight of structural elements and thus allows reducing their reinforcement, can be used. Unnecessary waste of metal can be stopped by improving the techniques of analysis and design.

There exist still other measures of this kind. They are very important. Not for nothing are the savings thus achieved called real savings.

But there aslo exist potential savings that can be derived by the economy in the future during the operation of equipment, buildings, and structures. This future gain is no abstraction--it is calculated by a scientifically substantiated and officially approved procedure. In practice, however, when assessing, say, the performance of scientific research institutes and their subdivisions, attention is still focused on real savings and not on the potential ones, since these are said to be not mandatory. For a reinforced concrete plant there is no incentive for such potential savings, since these supposedly do not exist in nature.

Yet the future ultimately always becomes the present. And so at present we have to consume the fruits of omissions committed in the past. In real terms this means the consequences--now no longer potential but real--that we suffer owing to metal losses (calculations show that 10 percent of the annual steel outout is wasted by rust), premature capital repair, and stoppages of the equipment under repair.

The origin of all these losses is corrosion. Unless metal is properly protected against it, durable structures cannot be assured and the inter-repair operating periods cannot be prolonged.

Reinforced-concrete elements are advantageous because even in a fairly aggressive medium they can perform without special detriment to the "health" of metal and without additional protective measures such as periodic repainting. A humid medium (most natural waters, damp soil, moisture-saturated air in, among others, wet-process shops) is even favorable to cement concrete by causing it to gain in strength over the years.

But does this mean that a reinforced concrete element will be unconditionally durable in such media? No, unless the corresponding construction norms and standards are followed. Concrete does gain strength with time, but with time it may lose the ability to protect its reinforcement. Usually this is due to so-called carbonization. The carbon dioxide absorbed from air converts the lime present in concrete to calcium carbonate, the alkalinity of the moisture present in the pores decreases, and the steel reinforcement begins to be "eaten up" by corrosion. Sooner or later, it weakens the bonding between reinforcement and concrete, cracks appear in the protective layer, and the strength margin of the structural element sharply decreases.

Most often, this process cannot be halted. It is even less possible to restore the loadbearing ability of the reinforced concrete element. There is only one way out--replacement, and this has to be resorted to asbestos-cement-products plants, where the air on the premises has a high humidity. A similar situation exists in anumal-husbandry buildings of reinforced concrete where the high air humidity combines with a high content of carbon dioxide and hydrogen sulfide.

Are our resulting losses great? According the the Scientific Research Institute of Construction and Building Materials, Estonian SSR Gosstroy, in Estonia owing to the corrosion of reinforcement, the coverings of animal-husbandry buildings have to be replaced completely or partially as early as after 15 years of operation, whereas their service life could have been at least twice as long. Similar tentative calculations by specialists of the Economics Laboratory of the Scientific Research Institute of Concrete and Reinforced Concrete, USSR Gosstroy, show that the premature replacement of roofs in the molding shops of reinforced concrete products plants based on continuous-flow unit-head technology alone costs 2.3 million rubles annually, with the attendent metal loss amounting to 6,400 tons annually. It should be moreover considered that this loss is irreversible: you cannot extract reinforcement from the slabs, so that it is completely excluded from circulation and has to be directly dumped. Cement, rubble, sand, metal, and, lastly, the labor invested in the construction and assembling of the building--all this is prematurely forfeited.

As for the total resulting loss to the national economy, it is simply impossible to calculate at present. Builders are not interested in notoriety of this kind, and the USSR Central Office of Statistics is barely beginning to gather the pertinent data.

Is it possible to markedly reduce such losses? Yes. And this can be accomplished by simple technological measures. When fabricating structural components the reinforcement must be carefully fitted in its designed position. This in its turn will assure the required thickness of the protective layer of concrete all over the surface. Then it is only necessary to monitor the thickness of the concrete. Our calculations show that the satisfaction of these requirements will prolong from 10-12 years to 50 and more years the service life of precast ribbed-roof slabs for industrial buildings with weakly aggressive air on their premises.

In general, this is not the discovery of some new America. Perhaps the only new thing about all this is that standards developed and formulated so long ago are violated so often in favor of quantity rather than quality of output, and that at present special emphasis must be placed on the observance of technological discipline. It is necessary to mobilize not only the engineering services but also the public, and primarily citizen monitors, in order to strengthen that discipline.

I do not think there is any reason for procrastinating on this matter. Methods for fixing reinforcement in place are well known. Description of innovations such as plastic fixatives can be found in special literature. Certain plants of the Glavpriokistroy Main Oka River Region Construction Administration are introducing monitoring of the permeability of concrete. The Scientific Research Institute of Reinforced Concrete under the USSR Gosstroy could transmit the developed blueprints of equipment and procedural data to other plants on the basis of contractual agreements.

Possibilities for achieving substantial future savings in industrial and agricultural construction also exist in other directions. In particular, in the domain of design. Designers should make gerater allowance for the nature and degree of aggressiveness of the atmosphere in which specific reinforced concrete elements will perform. Special elements have been developed for this purpose. All that is needed is that they should be more broadly used in designs and that, through close supervisions by the developers, builders would not replace them with standard elements.

The need for rigorous savings engenders the need to sharply elevate the culture of production and thus also to improve the upkeep of buildings. At many reinforced concrete elements plants inadequate sealing of the curing chambers is tolerated, heating and ventilating systems are defective, and pipe connections either leak steam or leak water. The elimination of such leaks is not only an aesthetic necessity and a requirement for real present-day savings of, say, fuel and power resources, but also represents potential savings. This is so because the air in such shops is more humid than expected, and moisture condenses on the surface of reinforced concrete. And we have already described what this leads to--premature aging of structural elements.

Production men always tell you that if only they would receive better incentives for such potential savings, they would introduce appropriate measures more rapidly and successfully. It appears that enterprise economists should indeed consider more effective incentives for discrete improvements in the durability of structural elements. But I believe that this should be done without revising the existing construction laws. The existing procedure for payment of incentives offers adequate possibilities for this purpose. For the present what is lacking is, above all, responsibility for the observance of sometimes elementary standards. This is a matter of meting out punishments rather that granting incentives.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

SHORTCOMINGS OF PREFABRICATED UNIT CONSTRUCTION

Moscow STROITEL'NAYA GAZETA in Russian 3 Oct 79 pp 1-2

[Text of an interview with S. Kurits, doctor of Technical sciences, by STROITEL'NAYA GAZETA correspondent V. Drozdov: "A Qualified Admission--Or Why the Prefabricated Unit Construction Method Still Does Not Produce the Expected Benefits"]

[Text] The prefabricated-unit construction method serves to expedite project construction, not only in West Siberia at that.

Prefabricated units represent an industrial facility (boiler room, compressor room, or pump station) assembled from room-sized units, box-type units, and complete sets of components and elements. These units and packages arrive in assembled and tested form at the construction site. All that is needed is to place them on foundations, inter-connect them, and connect them to the utility lines. That is all. The facility is ready for operation.

Recently, representative conferences of experts expressing various opinions about ways of improving the effectiveness of this method have been convened. There is no consensus either in the official responses of ministries and institutes received by this newspaper concerning the SG column publications, hence the Editors resolve to continue the discussion. Today we publish the text of an interview with S. Kurits, doctor of technical sciences, by our correspondent V. Drozdov.

[Question] Sergey Ivanovich, as demonstrated by the replies received by the Editors, in particular from the chief engineer of the Capital Construction Administration of the Ministry of Gas Industry, B. Kalmykov, the cost of prefabricated unit construction often is higher than the cost of construction based on traditional designs, and its duration sometimes is prolonged. Why does this happen?

[Answer] Not infrequently automated prefabricated units, which I will henceforth refer to as APU, arrive at the construction site in incomplete form. Another problem has been the lack of standardization of their design solutions. In the last four years designers have repeatedly altered the design of the box-type units in which equipment is installed. This required revising design ducuments and complicated assembling of complete unit packages owing to discrepancies between, e.g. the old partition panels and the new equipment layout. Other reasons have been the fabrication of units without their in-plant testing, and the insufficient substantiation of their cost. The cost of on-site assembling accounts for 50-60 percent of the total construction cost, although the best APU designs serve to reduce that cost to 5-10 percent.

[Question] It is thought that references to the high cost of prefabricated units will no longer be made if the customer, the sub-contractor and the equipment suppliers will all share in the attendant savings.

[Answer] The aforementioned causes of insufficient effectiveness of the method are only the surface causes--the root cause is different. Namely, it lies in shortcomings of the system for implementing this method in every stage--from the conception of the APU to its operation, modernization, and the exploitation of the latent physical potential and modernity of design. The inadequate level of APU design solutions, and the waste of manpower and material resources accompanying the introduction of this method occur because the customers, machine builders, designers, builders, and operators, all have different goals even though they all are entrained in the same production process.

There is a need for a purposive program for improving the system of the organizational management of prefabricated unit construction on the basis of the formation of two types of structural subdivisions. The first type would be a machine-building scientific-production association, which should be responsible for the development of experimental models of room units and packages adequate to the world scientific and technical level, as well as for the drafting of blueprints for their serial production. So far no such subdivision exists in the present infrastructure, but as for a prototype of the subdivision of another mixed type--the design-industrial-construction association--it already exists in the form of the Sibkomplektmontazh Siberian Complete Set Assembling Association of the Ministry of Petroleum and Gas Construction.

[Question] Judging from the replies received, all the responding readers agree that improvements in the structure of management should be based on a purposive program-oriented method, but there is no consensus as to who should direct the proposed program. The first group of respondents consider this to be a duty of the customer; the second group prefers entrusting these functions to some permanent agency of a commission type under the State Committee for Science and Technology or under USSR Gosplan. A third group prefers a scientific-production-construction association of one of the machine-building ministries. A fourth group of respondents names the USSR Gosstroy, and finally the fifth group names the construction ministries.

[Answer] I will analyze these replies by first dealing with those with which I do not agree. The second possibility is unsuitable, because the effective development of APU requires day-by-day practical work along with operative coordination of the activities of the organizations and enterprises of many ministries. A commission cannot accomplish this, of course. The third opinion contains a grain of sound sense. But such a subdivision would hardly be capable of achieving suitable cooperation with the ministries to which the customer and the builders are subordinated, and it would lack adequate economic and other tools for this purpose. The fourth opinion is flawed because the USSR Gosstroy cannot be competent in problems of the technical policy of machine builders, although it undoubtedly can provide coordinative and methodological assistance in introducing the method. I do not agree with the fifth and last opinion, either.

[Question] Sergey Ivanovich, excuse my interrupting, but that is rather strange considering that it is percisely to builders that priority belongs in the development of the method.

[Answer] Yes, builders were the pioneers in this field. To them belong the credit and glory for exploring this method, which they commenced as long ago as 1965 during the construction of petroleum and gas fields in Tatariya. The new method has become particularly widely used in West Siberia, where builders of petroleum and gas industry facilities accomplished a veritable technological revolution. Within the shortest periods of time they established a base for prefabricated unit construction, built up petroleum and gas fields, and erected pump and compressor stations in that austere land of trackless marshes. This has enabled petroleum and gas workers to attain those high indexes of which the country is now justly proud.

Further exploring the potential of the new method, the collectives of the Ministry of Petroleum and Gas Construction organized the nation's first specialized plant for the production of complete prefabricated unit packages, on the basis of which was established the nation's first association for the production, delivery, and assembling of APU--the Sibkomplektmontazh Trust.

However, even within such an association, all the advantages of the new method still cannot be exploited. The association has to collect equipment from various local customers, which complicates the prompt and complete provision of APU. The practice of including the cost of APU in the volume of construction and installation operations (the plant's financial accounting is based on construction operations) also is to be deplored. This artificially raises the cost of construction. This is convenient to the subcontractor, but quite inconvenient to both the customer and the national economy as a whole. Other instances of discord in the goals of the various participants in the "idea-to-production" cycle could be cited.

[Question] But perhaps the rise in the cost of APU is not so bad considering that they shorten construction time. So to speak the end justifies the means. Right?

[Answer] You see, any progressive method can accelerate the construction of not only modern but obsolete facilities. That is for one thing. For another, is that acceleration needed in cases in which users are not yet ready to receive the output produced by a completed facility and suppliers are not yet ready to provide it with raw materials? In such cases it makes no sense to expedite construction unless allowance is made for demand. It is the customer who is best qualified to answer this question. Consider also another factor: the prefabricated unit construction method is at its most effective when based on the most up-to-date solutions. Here again it is the customer who would show the greatest initiative. After all, seen from the systematic standpoint, the ultimate purpose of APU is to reduce the expenditures on the production of future output. And that is not only the customer's concern but also his duty.

Hence, as the saying goes, it is the customer who deals the cards. The more so considering that unlike, say, a commission, he can not only wish but also act, since he has the necessary resources. Hence it is he more than anyone else who can best coordinate the activities of all the participants in the "idea-to-production" cycle. That is why he should administer the scientific-production association, while the other type of association should be administered by the builders.

> The prefabricated unit construction method is effective, and it should be adminsitered on the basis of a purposive program-oriented principle--no one disputes this. But as for the machinery of that administration, details on which sometimes hinges success or failure, there is no consensus. In view of this, the Editors intend to continue the discussion of the problems of prefabricated unit construction, which is an important factor in expediting the completion of industrial construction projects.

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CONSTRUCTION, CONSTRUCTION MACHINERY,AND BUILDING MATERIALS

WORLD'S FIRST ROBOT BRICKLAYER BUILT

Moscow STROITEL'NAYA GAZETA in Russian 7 Oct 79 p 3

[Article by V. Maksimov, Naberezhnyye Chelny: "A Broad Range of Interests"]

[Text] That Mart'yanov is surely a man of few words. This time, too, Valentin Pavlovich did not depart from his customary laconic turn of speech. I heard on the telephone his level and calm voice:

"The test is scheduled for 10 a.m. tomorrow. Come!"

Mart'yanov is the chief of the experimental sector at the repair and maintenance administration. He is a graduate of the Novosibirsk Institute of Engineers of Railroad Transport. The Komsomol sent him to the Kama Automobile Plant. Here his institute dreams became reality: he found here a good production base and the possibility to "think broadly" and translate his thoughts into reality.

The robot was not designed by Mart'yanov. It the the brainchild of Petr Andreyevich Malov, docent at the Chair of the Technology of Construction Operations, Tashkent Polytechnical Institute, and of his son Yuriy Petrovich Malov, Senior Engineer of the Privolzhskstroy-avtomekhanizatsii Volga Region Construction and Automotive Mechanization Administration.

The most important and intricate components were built by the crews of the repair-instrumentmaking and press-frame sections of the Kama Automotive Plant, with some parts being constructed by the construction mechanization administration of the Kamgesenergostroy Kama Power Plant Construction Trust. But calculations, blueprints, and the entire machine in disassembled state still do not make a robot. Its assembling, testing, and preparation for work were entrusted to Valentin Pavlovich Mart'yanov and to the team of engineers and designers under his direction. This necessitated not months but years.

Marty'anov carried out a series of research projects. This resulted in the development and construction of a transport mechanism of a fundamentally new design. Together with his colleagues, he had to examine six different versions before assuring the necessary reliability of the mechanism.

The tests of the robot bricklayer were performed on closed premises. I thought I would see a machine of the "Moonwalker" kind, but the silica-brick wall was laid by a three-meter high structure resembling a minature tower crane.

Its steel hand-fingers picked up in a human-like manner heavy bricks and in a masterly way laid them in neat rows. Both the thickness of the layer of mortar and the verticality of the erected wall satisfied technical requirements. Those present at the robot's test were astonished by the speed of its bricklaying.

The robot replaces 15 skilled bricklayers. It is tended by two men: an operator and his assistant. It can lay 24 cubic meters of brick masonry per hour. What is also interesting is that the robot can be programmed to lay any kind of brick masonry, whether perforated bricks or the Popov-Orlyankin kind, or other. It can even erect highly intircate architectural structures, on using hollow tiles, and follow mosaic patterns. It has already begun to be taught all this.

Valentin Pavlovich attempts to make all his ideas the common property of all. He publishes in the journals MEKHANIZATSIYA STROITEL 'STVA and BEZOPASNOST' TRUDA V PROMYSHLENNOSTI. Recently Mart'yanov has completed preparing for publication the collection of articles "Opyt Ekspluatatsii Krancv na Stroitel'stve KamAZa" [Experience in Crane Operation in the Construction of the Kama Automobile Plant]. Experts evaluate that collection positively.

Mart'yanov is a passionate champion of innovations. Under his direction the argon welding of aluminum, titanium, and stainless steel has been introduced within the administration. Valentin Pavlovich has directed the work to construct a machine for leveling slopes and laying concrete. And the all-purpose automatic mortar feeder developed in the experimental sector has more than doubled the productivity of bricklayers.

The young engineer's inexhaustible energy can beenvied. Since his arrival in Naberezhnyye Chelny he has succeded in completing the University of Marxism-Leninism and receiving an honors degree. Mart'yanov's degree thesis is titled "The Brigade-Level Approach to the Construction of the Kama Automotive Giant." It is not accidental that the party committee at the Educational Methodological Council entrusted to him the direction of the "School of the Principles of Economics and Management of Production," which is attended by foremen and superintendents.

Mart'yanov knows how to live for the future. He is convinced that the world's first robot-erected building will arise in Naberezhnyye Chelny. Valentin Pavlovich even specifies the tentative date of that event: end of 1980 or the beginning of 1981.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

UZBEK CONSTRUCTION INDUSTRY CRITICIZED

Moscow STROITEL'NAYA GAZETA in Russian 21 Nov 79 p 3

[Article by L. Yakubovich, chief, Technical Administration, Uzbek SSR Ministry of Building Materials, Tashkent: "Disturbances on the Line: What Impedes the Development of Prefabricated Structural Components in Uzbekistan"]

[Text] The plan for the development of the building materials industry in Uzbek SSR during the 10th Five-Year Plan provides not only for increasing output, but also for producing new effective materials and components. In the past years the collectives of the branch's enterprises have reached a more than 20 percent increase in output. The fabrication of more than 20 types of new products has been organized. This was accomplished chiefly through the modernization of equipment and a better utilization of production space.

The Angren Building Materials Combine, for example, has organized the production of colored decorative cement. Another enterprise in that city--the ceramics combine--mastered the production of colored porcelain plumbing fixtures and high-grade gypsum. The Akhangaran Cement Combine has completed the retooling of its slate production facilities on replacing the obsolete production lines with four more up-to-date SM-1155 lines, which served to completely mechanize slate production and eliminate the fabrication of VO-type small sheets. In lieu of these, we now supply the republic's construction sites with medium-corrugation SV-1750 large sheets. Structural components of this kind contribute to a marked rise in the labor productivity of builders. Now the use of scarce lumber for trusses has been markedly reduced. And at the same time the use of cement and asbestos to make the slate has been reduced at the combine. The savings yielded by each of these new production lines reach nearly 200,000 rubles.

As is known, there occur occasional shortages of acoustic decorative materials for installing suspended ceilings, as well as of sound-absorbing wall components. We succeded in somewhat alleviating these shortages by organizing the corresponding production at the Akhangaran Cement Combine.

The modernization of production has been accomplished fairly rapidly and with a minimum expenditure of resources. But it is clear to everyone that the steadily rising demand of capital construction for new effective materials and prefabricated components cannot be satisfied solely by retooling the existing enterprises. In many cases production has to be organized from the ground up. the program for the development of our branch did provide for building a number of large production facilities. Unfortunately, the heads of the construction agencies do not give priority to such projects, although they do not openly object to the need for a spearheading development of the construction industry base.

Serious criticism is deserved, in particular, by the heads of Trust No 14 of the republic's Ministry of Construction. This particular construction organization has been extremely slow in building a large compression-molded slate ship at the Kuvasay Cement Combine, even though that shop is indispensable to the production of lightweight panels and other prefabricated components. Last year this subcontractor utilized only 44 percent of the assigned funds, and during the first three quarters of this year it utilized little more than 60 percent. And yet this project has been completely provided with the equipment and blueprints it needs.

Another major construction organization--Trust No 6 of the Glavtashkentstroy Main Tashkent Construction Administration, is now in its third year of building a shop for the production of perlitic sand and calcined lightweight material. By introducing the lightweight filler the enterprise could greatly reduce its expenditures on the production of heat-insulated structural components, and offsite packets of calcined lightweight material with a prefabricated vapor-tight layer could markedly increase the labor productivity of roofers. But the building of the shop proceeds with impermissible slowness. This year the heads of Trust No 6 moreover withdrew workmen from the construction site. Construction also is poorly organized at the Santekhlit Plumbing Fixtures Plant in Akhangaran, the Il'ichevsk Brick Plant, and elsewhere.

This impedes the production of new types of structural components and building materials which have long been awaited by the builders themselves. The republic's Ministry of Building Materials had to put off indefinitely launching other construction projects. Last year alone the volume of uncompleted operations reached nearly six million rubles.

There exists yet another obstacle to the development of the production of new materials and structural components in the republic--the absence of a pilot production base within our ministry itself. Tens of specialized institutes are developing new products and technological processes and proposing various techniques of waste utilization. But the scientists lack the facilities for conducting the pertinent pilot-production trials.

STROITEL'NAYA GAZETA has already mentioned that a pilot-production line for low-temperature cement has been built at the Akhangaran Cement Combine. But the USSR Ministry of Building Materials decided to transfer it to the jurisdiction of the Galvzapadtsement Main Western Cement Administration, which is located in Moscow.

We consider such an approach to be unjustified. Administration of the line from such a great distance will produce undesirable consequences. Such a centralization is totally superfluous. Why should not that facility, like the plant itself, be subordinated to the republic's Ministry of Building Materials? Many of our scientists' projects concern refinments in the production of various kinds of cement on the basis of local raw materials and industrial wastes. The new line in Akhangaran could be used as the basis for developing a permanent experimental production base.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

ORGANIZATION OF HOUSING CONSTRUCTION DISCUSSED

Coordination of Housing Construction Needed

Moscow MOSKOVSKAYA PRAVDA in Russian 4 Oct 79 p 2

[Article by I. Gass, Deputy Chief of Mosstroy Moscow Construction Trust No 7: "To Improve the Performance of Construction Organizations the Capacities of the Production Links Should be Adjusted and the Disproportions Existing in This Branch Eliminated"]

[Text] In the economic organ of the Glavmosstroy Main Moscow Construction Administration a disproportion has arisen between the foundation-laying capacities and the possibilities of the organizations handling the construction of the above-ground parts of buildings. There also exist secondary disproportions- between the foundation-laying capacities proper and the utility installation capacities.

This is no new discovery. The trouble is that for years the situation has not been improving, but is rather getting worse. We have long forgotten the meaning of a completed "zero cycle." As a rule, utilities are installed during or even after the stage of finishing operations. All this produces substantial losses.

I will cite several examples. Last December the Trust released for occupancy Building No 64 in Otradnyy. But the installation of heat and electricity in the building continued until July, when exterior clean-up operations commenced. Owing to delays in installation of heating lines, Building No 50 in Tekstil'shtiki has not been completed despite its acceptance by the state commission.

A customer--the Institute of National Economy imeni G.V. Plekhanov--had allotted land for erecting the new building. The Mosfundamentstroy Moscow Foundation Laying Trust No 3 delayed for 3 months the installation of utility lines and the preparation of the area for construction, owing to lack of capacity. This means that the brigade of assemblers scheduled to arrive at the construction site will be unable to start normal operations, since the utility lines will be laid after the erection of the building is completed.

As of 1 January of this year customers have not settled accounts with the Glavmosstroy for more than 200 completed projects worth more than 100 million rubles. One reason for this situation is the imbalance between the capacities of the Glavmosstroy's production sectors.

It cannot be said that nothing has been done to expand the foundation-laying capacities. At one time, under the pressure of circumstances, three trusts were converted to zero-cycle construction. Now there are eight such trusts under the Glavmosstroy. In our opinion, to rectify the situation, an additional four should be thus converted, as a minimum. The proper proportion should be three general construction trusts to every foundation-laying trust.

We foresee objections. Some will say that the conversion of several general construction organizations to zero-cycle construction may adversely affect the pace of construction in the city. We do not believe this will happen. The trusts and DSKs [housing construction combines] at present lose so much time owing to the slow and substandard execution of preparatory operations that if these losses are eliminated by adding to the number of foundation-laying organizations, they will be able to erect with their own resources a much greater number of buildings and at a lower cost at that.

But this is not the only problem to be solved. Social problems also need to be solved. As is known, foundation-laying workers operate under much more difficult conditions than, say, building assemblers. But their pay is the same, and their paid vacations are not longer. It seems to us that a radical solution of the problem of foundation-laying personnel requires placing them in the same [wage] level category as the workers of mining and tunneling trusts, even if with a downward-adjusted index.

At one time, the question of allocating to foundation-laying workers all the equipment needed for excavation, hoisting, and transporting operations along with specialized motor transport vehicles had been discussed. The question remains topical to this day. One may object that this will adversely affect the machine-shift and ton-kilometer indicators. But all that machinery and equipment has been designed not for this purpose but for the purpose of erecting buildings.

Zero-cycle operations can be considered completed when the building assemblers find the construction site ready for their operations by being provided with heating systems, transformer substations, roads, and tracks for the installation of the tower crane.

Analysis of the reasons for delays in the standard periods of construction shows that one-half of all time lost is due to the construction of access and crane tracks. From our own experience we know that it is an effective measure to organize within each construction administration a small subdivision dealing with just one thing on a year-round basis--the preparation of the construction site in cooperation with the customer and its transfer to the foundation-laying workers. The subdivision then operates together with these workers to install regular and central heating points, to prepare accomodations for the assemblers' brigade, and to investigate the interconnection of utility lines.

In our opinion, it is also expedient to charge a manager having the rank of Deputy Chief of the Glavmosstroy with coordinating the operations to prepare the constuction site for the building assemblers (from the moment of acceptance of site from the customer until it is readied for the installation of the tower crane). Such a manager would be endowed with considerable rights and responsibility, by analogy with what has been done as regards building the facilities for the 1980 Olympics.

If these suggestions are adopted, the principal disproportions will be eliminated.

Now let us consider other disproportions. The capacities of the plumbing (ventilating), electrical-installation (weak-current) organizations are smaller than needed for the erection of buildings and structures. This too is demonstrated by experience. Thus, a building on Gonsharskiy Passage was completed, and all the interior and exterior operations were completed, except in the site of the ventilation standpipe, owing to the lack of needed components.

A complete set of ventilating components was delivered to the construction of the adminstration building of the Goskomsel'khoztekhnika State Agricultural Equipment Trust. It remained lying on the site for more than a year because the installers did not come.

At present two specialized administrations under the Glavmosstry handle ventilation operations. This is clearly insufficient. It is high time to organize a Mostroyventilyatsiya Moscow Ventilation Construction Trust under the Glavmosstroy. This question has long been discussed. The installation of ventilating facilities is perhaps one of the worst bottlenecks in the technological chain of the Glavmosstroy.

In recent years provisions have been made for an ever increasing volume of special operations on housing, industrial, and office-building construction projects. These operations are handled by the subdivisions of the USSR Ministry of Instrument-Making, Automation Facilities, and Control Systems. But a new single-section building requires 1,500 to 2,000 rubles worth of such operations and so the Ministry is not interested in performing them. Hence, many residential buildings stand for two or three years without automatic fire control systems. Subdivisions of the USSR Ministry of Special Installation and Construction Operations also handle certain operations on our sites under the patronage system, to the extent of not more than 100,000 rubles a year (0.3 percent of our program), but they do so under conditions that are extremely difficult to us.

It would be desirable for the Glavmosstry to rid itself of its dependent status by setting up its own installation organization, perhaps with the assistance of planning agencies and ministries that might transfer to the Glavmosstroy's disposal the capacities extended to it by the abovementioned two ministries.

There exists a third disproportion--between the machinery pools of the general construction organizations and the finishing organizations. This problem is so complex that we cannot analyze it in detail. But it has to be mentioned. Buildings are often finished by hand without using even the available equipment, and this delays construction and its completion schedules and hence also worries all builders.

All these disproportions cause stoppages in the city's construction conveyor and, owing to their inherent logic, prompt builders to violate the tecnological regime, doctor reports, and commit other infractions. Moreover, they disrupt the unity of productive, economic and educational activities.

The decree of the party and state on "Improving the Planning and Intensifying the Effect of the Economic Mechanism on Increasing the Effectiveness of Production and Quality of Performance" points out that a major trend in improving all planning work is, in particular, the elimination of interbranch and intrabrance disproportions. Otherwise, ideal indicators may prove ineffective. Hence special attention should be paid to eliminating the existing disproportions.

Housing Construction in Tyumen' Criticized

Moscow STROITEL'NAYA GAZETA in Russian 25 Nov 79 p 3

[Article by V. Badov, STROITEL'NAYA GAZETA Correspondent Tyumen': "The Specificity of Tymen'"]

[Text] Within some 10 years a constellation of modern cities has been created in the petroleum regions of West Siberia. Offsite housing construction has made strides toward the Polar Circle—to Urengoy and Nadym. Altogether, during the present five-year period alone, some four million sq m of dwelling area has been built in Tyumenskaya Oblast.

Is that much or little? From the viewpoint of the present-day scale of development of this enormously mineral-rich region it is little.

The country spares no resources to develop the oblast. At times the housing construction plans are doubled. For example, the Nizhnevartovskstroy Construction Trust was scheduled in 1976 to complete 110,000 sq m of dwelling area, and in 1978--220,000 sq m. Twice as much!

However, the Tyumen' housing builders are not coping with their increased tasks. This year 658,000 sq m of dwelling area is to be built in the oblast as a whole, but during the first nine months of the year only 466,000 sq m--a little more than one-fourth [sic] of the planned annual target--has been completed.

The Chief of the UKS [Capital Construction Administration] of the USSR Ministry of Petroleum, P. Alekseyev, cited a discouraging fact: in the first half of the year the Tyumen' petroleum workers did not receive a single new housing project. In his opinion, the subcontractors--subdivisions of the USSR Ministry of Industrial Construction and Ministry of Petroleum and Gas Industry Construction--are falling back from their positions.

The targets assigned to the housing builders are based on the designed capacities for the production of precast reinforced concrete. But these capacities have been mastered only in half. For example, the Surgut DSK [Housing Construction Combine] last year produced only about 200,000 sq m instead of 380,000.

A major reason for this situation is the shortage of personnel and qualified specialists, which in its turn is due chiefly to the lag in housing construction.

There are reasons of another nature. The capacities of the housing construction base are not matched to the material and technical resources. Stoppages owing to lack of rubble, sand, and cement are usual in this oblast. The Surgut DSK last year did not operate for 168 days owing to lack of concrete aggregates. The Sibzhilstroy Association of the Ministry of Petroleum and Gas Industry Construction, which administers the Surgut DSK is now again experiencing a shortage of half a million cubic meters of rubble.

The severity of the local climate also cannot be disregarded. In winter construction operations cease for at least a month owing to frosts. Moreover, the residential building designs do not make allowance for the specific conditions of Tyumenskaya Oblast with its -45°C frosts. For example, buildings in the I-164 series of the LenZNIIEP Leningrad Scientific Research Institute of Experimental Design can essentially be created only during the relatively warm season of the year.

Complete sets of buildings are delivered to the oblast from other parts of the country. If the complexity of delivery is also considered, the lack of smoothness in construction operations, which depend on suppliers in Volograd, Omsk, Perm', Irkutsk, and Ufa, becomes obvious....

The chaos reigning in these deliveries has long been the talk of the town. Last year the USSR Ministry of Building Materials Industry, the USSR Ministry of Heavy Industry Construction, and the USSR Ministry of Construction were instructed to assure deliveries of 60,000 sq m of complete sets of prefabricated buildings to Tyumenskaya Oblast. Two ministries fulfilled this task only in part, while the USSR Ministry of Construction did not deliver anything at all. And now the plants of these ministries again are remiss with deliveries to Tyumen'.

Another painful problem is the chronic delays in blueprints and design documents. The Orel method [of continuous two-year planning] has not spread to Tyumen' land.

The housing problems in the Ob' River regions are not recent. Too much time was wasted on creating the oblast's own housing construction base. For example, all these years, the USSR Ministry of Industrial Construction opened only one DSK in Tyumen', and that DSK has now moreover become bogged down in its own modernization. Last year the first stage of the KPD [large-panel plant for housing construction] in Nizhnevartovsk was not completed on schedule. The large construction industry base in Tobol'sk, designed for 140,000 sq m, is being built at an intolerably slow place.

The unsolved problems of development of this sub-branch in Tyumenskaya Oblast have more than once been considered by the central USSR departments. Last July the Minister of Industrial Construction A. Tokarev and the Minister of Petroleum and Gas Industry N. Mal'tsev signed a joint protocol concerning urgent steps for the construction of Nizhnevartovsk. But this did not result in any real improvement in the situation.

The USSR Ministry of Industrial Construction, for example, pledged itself to eliminate the manpower shortage in the Nizhnevartovskstroy Association. Three and one-half thousand workers were to be dispatched, but actually only 1,300 were received. The delivery of equipment for the start-up of the KPD plant was guaranteed for as long ago as last year, but it was received in Nizhnevartovsk only recently. Thus, to this day the Nizhnevartovskstroy Construction Trust still lacks its own construction industry base.

The USSR Ministry of Industrial Construction also promised unconditional fulfillment on schedule of deliveries of all the needed reinforced concrete products to Nizhnevartovsk, but this pledge was not kept.

As before, the Achinsk and Krasnoyarsk housing construction combines of the USSR Ministry of Heavy Industry Construction, the Tomsk Plant of the USSR Ministry of Industrial Construction, and the Asbest City Plant of the USSR Ministry of Building Materials Industry, are remiss in their deliveries. Essentially, no inventory in advance of the next year is available. Owing to the shortage of capacities the activation of purification facilities has been delayed.

As a result, the schedules for completion of housing are of purely nominal importance. The "urgent measures" have not been implemented.

The importance of this new major industrial region is difficult to overestimate. One after another, pipelines are being laid. The Ministry of Petroleum and Gas Industry carried out in Tyumenskaya Oblast 52 percent of its entire volume of operations for the branch. The rate of pipeline construction in Tyumenskaya Oblast is the fastest in the nation. But as for the rate of housing construction, it sharply lags behind.

Given such a disproportion between industrial and non-industrial construction, the burden is growing at a faster pace than are the possibilities for relieving it. The USSR Ministry of Petroleum and Gas Industry alone has since the beginning of the five-year period fallen short by 147 million rubles in making capital investments in the oblast.

A radical change in the situation requires stregthening the local housing construction base as soon as possible and organizing a smooth flow of deliveries of materials and equipment to non-industrial construction sites. Lastly, the question of having a single designer and a single ordering agency for every city in the oblast must be settled.

There also exists yet another realistic means of rapidly overcoming this dangerous disproportion: about a million square meters of dwelling area should be built in the Ob' River region with the resources of construction organizations from the more developed regions of this country, as has at one time been done in Tashkent and Naberezhnyye Chelny. At that time, such simultaneous assistance produced a considerable economic and social effect.

Of course, this would be an extraordinary measure, but one thinks that, along with the others, it is necessary. The people developing this tremendously rich region of the country should be provided with permanent and well-built housing.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

FULFILLMENT OF STATISTICS FOR HOUSING CONSTRUCTION

Moscow STROITEL'NAYA GAZETA in Russian 31 Oct 79 p 1

[Text] The third quarter was to play a special role in the struggle of housing builders to fulfill the year's program. Wherever smooth and efficient assembly-line-style operation had been achieved, its continuation was highly important. The laggards had to catch up and advance strenuously so as to maximally streamline operations and assure a favorable ending. Hence, the plan targets for the third quarters were rigorous for all, and particularly for the laggards.

How did the subcontractor organizations cope with their tasks?

The performance of the four all-Union construction ministries in the third quarter is alarming. The target for releasing housing for occupancy was fulfilled only 81 percent by the USSR Ministry of Industrial Construction and the USSR Ministry of Construction, and 84 percent by the USSR Ministry of Heavy Industry Construction. Consider also that these ministries did not complete all the projects on schedule during the first half of the year either, even though they then fulfilled the plan much better than in the third quarter. The USSR Ministry of Agricultural Construction, which had coped with the plan for the first half of the year, has also fallen behind during this quarter; it fulfilled the plan only 85 percent.

An even greater lag was recorded for the Ministry of Petroleum and Gas Industry Construction, many of whose construction projects are located in the region of the nation's new petroleum-bearing fields where the demand for housing is particularly high. Of the 1.5 million square meters of living area planned for this year, so far only 561,000 m^2 or 37 percent could be completed. The third-quarter target was fulfilled only 69 percent by the subdivisions of that ministry. Similar low indicators prevail for the USSR Ministry of the Power Industry.

However, the worsening of the quarterly indicators does not mean that the new housing stock has shrunk during the third quarter; the state commissions have even certified somewhat more housing than in both preceding quarters. The problem is that, year after year, in many cities and entire republics the first-quarter plans are set too low in order to prompt builders well in advance to make haste and complete the plan "by assault" in the final quarter. Thus, all the Union construction ministries were scheduled to complete during the first half of the year only one-third of the housing planned for the entire year, with the remaining two-thirds to be completed during the second half of the year.

Analysis of the situation in housing construction in the republics reveals, as was to be expected, that the greatest third-quarter laggards are those who had wasted a lot of time during the first half of the year. The infractions of plan discipline have again been particularly significant in Kirgiziya, where the markedly lower first-semiannual plan had been fulfilled 49 percent and the third-quarter plan, only 37 percent (by the enterprises and organizations subordinate to the republic's council of ministers). The situation on housing construction sites in Turkmenia is highly alarming: only 58 percent of the housing scheduled for completion was actually completed during the third quarter.

The leader, so to speak, in first-semiannual performance was Belorussia, which overfulfilled its housing construction plan. But the seemingly impressive figures even then could not conceal a dismaying picture: the first-semiannual plan accounted for only one-fifth of the entire annual program. It is not surprising that in the third quarter this republic is among the greatest laggards.

The causes of irregularities in the smoothness of housing construction admittedly also include objective causes. This concerns the lack of coordination between the subcontractors' operational plans and the allocated material and technical resources, and the discrepancies between the targets and capacities of construction organizations. But it would be wrong to accept only this rationale. After all, all other conditions being more or less equal, some subdivisions perform well while others lag behind. This means that latent potential should be more insistently exploited and pace-setting experience should be more boldly emulated and introduced. The key to the solution of many problems in housing construction is the continuous-flow method of construction planning in a combination with cost-effective approach from the bottom up and socialist labor competition based on the "relay baton" principle. Wherever progressive methods are comprehensively applied, major advances are achieved. This is exemplified by the housing builders of Moscow, Orel, Ryazan, Vil'nyus, and some other cities, in which the year's program has so far been fulfilled about 70 percent.

Currently the most responsible and final stage of construction for this year has started on the construction sites. It is the duty of housing builders to repair omissions and complete the construction of all the housing scheduled for releace for occupancy.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

PERFORMANCE OF HOUSING CONSTRUCTION ENTERPRISES CRITICIZED

Moscow STROITEL'NAYA GAZETA in Russian 10 Oct 79 p 3

[Article by V. Petrushenko, chief technologist Giprograzhdanpromstroy State Institute for the Design and Planning of Industrial Housing Construction, and Ye. Dmitriyenko, correspondent, Press Center, UkrSSR Ministry of Industrial Construction: "They Operate Unreliably: New Housing Construction Enterprises Certified by State Commissions Despite Numerous Shortcomings"]

[Text] There exist altogether 65 large-panel plants for housing construction and DSKs [housing construction combines] in the Ukraine, and their aggregate capacity is about 6.5 million m^2 of living area annually. Actually, however, in 1978 they released for occupancy only 5.5 million m^2. About as much is scheduled for this year as well. Thus each year nearly one million m^2 of living area in capacity remains unutilized. In other words, each year workers are deprived of 20,000 apartments.

Another remarkable fact is that designed capacity is better utilized at large plants with stable personnel and good traditions. Such plants include the DSKs of Kiev, Khar'kov, Krivoy Rog, and Dnepropetrovsk. The more recently opened DSKs perform much worse.

These include the Poltava DSK. In its three years of existence it still has not reached its designed capacity of 120,000 m^2 of dwelling area. Last year the combine produced only one-third of that amount, and this year it plans to produce components for 60,000 m^2.

In the opinion of the Chief of the Poltava Industrial Construction Trust V. Pos'mashnyy and the DSK Chief E. Slutskiy, this is due to mistakes made by designers, are are blamed for shortening the bays of the main building by 18 m and for placing an assembly area outside the radius of action of the concrete laying machine, as well as for providing for only one crane in the bay for the production of exterior walls.

However, a special commission investigating on the spot the operations of the Poltava DSK rejected these arguments, finding that the shop production areas correspond with the designs, and that this is not the fault of that unfortunate assembly area. Besides, what is the point of discussing additional production space when the available space is utilized so poorly? As for that single crane in the exterior wall bay, it proved insufficient owing to the inaction of other facilities.

The leading enterprises, and particularly the Belaya Tserkov' DSK which builds the same series of "111-94" buildings, fabricate as much as 14 cubic meters of reinforced-concrete components per sq m of production area, whereas at Poltava the corresponding figure is 10-12 cubic meters even after the designed capacity was reached. Truly, the old truth has a special bearing there: "If you do not wish to fulfill the task, look for the reason; if you wish to fulfill it, explore the possibilities."

The equipment for the Poltava DSK was built by nonspecialized enterprises of the Main Administration for the Mechanization of Industrialized Construction Operations of the republic's Ministry of Industrialized Construction. It required particularly thorough adjustments during the pre-opening period, but that was not attended to in time. No attention was focused either on adjusting the machinery in the process of actual fabrication of components. A great deal of that machinery is still inactive to this day. The brigade of highly skilled fitters that was to attend to this task had soon been retransferred.

This last fact makes sense considering that the personnel situation at the Combine is generally bad: people do not stay long at a poorly performing enterprise. Thus, early this year there was not a single specialist with the qualifications of a technologist in the fabrication of reinforced concrete products at this DSK.

The situation at Poltava also is duplicated at certain other DSKs. The Dneprodzerzhinsk DSK is now five years old, but so far it has achieved only two-thirds of its designed capacity. Its pusher system has broken down, and the frame and lock opening machines as well as the cross-transfer devices in the vibration area are malfunctioning. The personnel of the Voroshilovgrad and Ivano-Frankovsk plants have simply been marking time for the last three years without ever reaching their designed capacities. The equipment installed there also proved to be extremely unreliable.

Unfortunately, the quality of equipment at most newly opened enterprises leaves something to be desired. But at some DSKs everything is being done to improve technology and modernize equipment while at others this matter is treated in a slipshod manner or even nothing is being done about it. Hence the differences in performance.

Not a month passes without some new labor-saving innovation being introduced by innovators at the Khar'kov, Belaya Tserkov, and other leading DSKs. These DSK masters often improve equipment and organize its series production. At the Kiev DSK-4, for example, the resonance-vibration facilities had not performed reliably; so they were rebuilt and now the line performs more stably. In Odessa the frame and lock opening and closing machinery was successfully modernized so that now this operation is completely automatic.

The development of creative ideas is of definite assistance to improving the performance of the DSKs. If, however, the problem is to be solved in its entirety, steps should be taken above all to improve the series-produced equipment and tools for housing construction enterprises. This concerns the discrepancy between the possibilities of the enterprises of the Ministry of Construction and Road Machine Building and the needs of the housing construction enterprises. At present the latter enterprises have somehow to find that equipment and place orders for it at nonspecialized enterprises which cannot guarantee its quality. The problems of the pertinent equipment design also remain unsolved. Along with the Giprostrommash and the Giprostrom state institutes for the design of construction machinery and equipment, tens of departmental institutes and design bureaus are working to design the machinery.

Clearly, a more serious approach to the series production of equipment should be adopted. The responsibility of the manufacturing plants for the quality of their output should be tightened. They should guarantee a reliable performance of the equipment they make and rapidly eliminate any defects that may arise.

It is finally time to tighten the requirements for the certification of new capacities by the state commissions so that these capacities would be accepted only after all shortcomings are eliminated and the equipment is tested.

The prompt attainment of designed capacities by the DSKs is decisive not only to the recoupement of the tremendous investments made by the nation in the development of the KPD base but also to the fulfillment of housing construction targes. Hence everything should be done to cause the off-site housing construction plants to operate at full capacity.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

EXPEDITING HOUSING AND PRESCHOOL CONSTRUCTION URGED

Moscow STROITEL'NAYA GAZETA in Russian 5 Dec 79 p 2

[Article by P. Bad'in: "A Daily Concern: Expedite the Completion of Housing and Preschools"]

> [Text] The Secretariate of the Central Committee of the Trade Union of Construction and Building Materials Industry Workers held a session on the topic of "The Unsatisfactory Performance of Economic and Trade Union Organizations in Fulfilling the 1979 Plan for the Construction of Housing and Preschools."
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> The topic was discussed with the participation of the USSR Deputy Minister of Agriculture G. Sukharev, the USSR Deputy Minister of Industrial Construction N. Ostrovskiy, the Chief of the Main Administration of Capital Construction of the USSR Ministry of Construction M. Faustov, and the secretaries of the Trade Union Central Committee I. Kolesnikov, R. Rodionov, V. Frolov, and others. The Chairman of the Trade Union Central Committee I. Lanshin spoke at the meeting.

Housing construction in this country proceeds on a broad scale. The amount of housing released for occupancy within less than one month is equal to that of five cities with a population of 100,000 each. Along with the planned increase in the quantity of housing construction, its quality is steadily improving. The layout and comfortability of apartments as well as the outer appearance of buildings have improved.

Success here largely hinges on further advances in industrialized construction techniques and design and cost-estimate planning, and on the propagation of advanced knowhow of the organization of labor and management in the branch. The personnel of many housing construction combines and trusts have achieved good results. The program for housing construction this year has been fulfilled much in advance of the schedule by the Moscow DSK-3 [Housing Construction Combine bo 3]. The 10-month program has been fulfilled by the Elektrometallurgstroy Combine of the USSR Ministry of Heavy Industry Construction, by the agricultural construction ministries of the Uzbek and Armenian SSR's by the Glavvladivostokstroy Main Vladivostok Construction Administration and the Chuvash Territorial Construction Administration of the USSR Ministry of Construction, the Checheno-Ingush Construction Administration and the Glavkavminkurortstroy Main Caucasus Spa Construction Administration of the USSR Ministry of Industrial Construction.

Special attention and support in housing construction are merited by the feats of labor and new work methods engendered by socialist labor competition and tested by practice, such as the Yaroslavl' housing construction agreement, the Orel continuous two-year planning system, and payment for completed projects without prior advance payments. All this enhances the effectiveness of capital investments and improves the quality and reduces the completion time of housing projects.

The new housing projects in Vladivostok, Yaroslavl', Riga, Tallin, and various other cities are being erected in a comprehensive and smooth manner. This has not, however, become the pattern and daily practice in present-day urban housing construction. As before, some 40 to 50 percent of all housing is released for occupancy in the fourth quarter of the year, chiefly in December at that.

This can be avoided by introducing the Orel "continuous" planning method. Unfortunately, this effective housing construction method is at present being introduced in only 58 cities of the RSFSR.

The smooth completion of hosuing is assisted by the introduction of the brigade-level cost accounting system level. The cost-accounting brigade of installers at the Saratov Housing Construction Combine, headed by V. Gorbachev, is considered to be one of the best in the branch. Gorbachev has been honored with the title of 1979 USSR State Prize Winner. His brigade completed a four-year program within two years and eight months while at the same time increasing its labor productivity 53 percent and consisting of only 30 persons instead of the planned 46.

E. Konstantinov's brigade at the Tula DSK also performs feats of labor. On the basis of brigade-level cost accounting, it has fulfilled its four-year task ahead of schedule. There exist quite a few such examples of honest labor by crews operating on the cost-accounting principle.

It is now planned to raise to 80 percent by the end of next year in housing and cultural-communal construction the operations performed by brigades operating on this principle. However, the performance of the principal subcontractor ministries in the first 10 months of this year indicates that certain collectives fall behind and fail to fulfill their tasks and socialist pledges. The plan for completion of housing construction by subcontractor organizations has been fulfilled only 75-80 percent.

It is alarming that in certain regions of Siberia, the Far East, and elsewhere housing and civic construction lags sharply behind industrial construction. This affects adversely the utilization of capital investments as a whole, the stability of personnel, and the subsequent attainment of designed capacities. The Glavtyumen'promstroy Main Tyumen' Industrial Construction Administration has long been underfulfilling its housing construction plan. The situation has not improved even now. The 10-month target for releasing housing for occupancy was not fulfilled even in half, and the fulfillment of the annual plan is being threatened.

Early this year the CPSU Central Committee and the USSR Council of Ministers issued a decree for the training and retention of construction personnel in proudction. Along with other allowances received, the workers of the branch were permitted to markedly expand the volume of housing construction for their own needs. In recent months certain subdivisions have accelerated the pace of construction of housing for their workers,and this has favorably affected the fulfillment of social-economic plans and of measures to implement the progrem for the completion of construction projects. Nevertheless, many main and territorial administrations as well as associations and trusts have underfulfilled the targets for completing the construction of their own housing. The situation in this respect is especially unfavorable at the Kuzbass and Alaty main construction administrations, and the Novgorod Territorial Construction Administration, which experience the greatest need for housing and for this reason are unable to complement the personnel of their subdivisions.

These days more than 400 housing construction combines and reinforced concrete products plants operating on the continuous-flow principle exist in the nation. Yet certain enterprises operate far below capacity, while others fabricate obsolete products.

Discussions at the meeting of the Trade Union Central Committee Secretariat revealed that this year, which is the International Year of the Child, the rate of the construction of preschool buildings has increased. The 10th Five-Year Plan provides for completing kindergartens and nurseries with a total of 2.5-2.8 million vacancies. Many collectives are coping with this task. The Main Volga Region Construction Trust, the Main North Caucasus Agricultural Construction Turst, and the Voronezh and Tambov territorial construction administrations are building preschools on schedule or ahead of schedule in the first 10 months of this year. But major shortcomings still have not been eliminated in this important field. As before, the plans for releasing preschool buildings for use are being underfulfilled.

Despite the great need for their own preschool buildings, the Volga Region, Pskov, and Kostroma main territorial construction administrations have not coped with their tasks, and the same can be said of the Main Bryansk Industrial Construction Administration, and of the agricultural construction ministries of Belorussia and the RSFSR.

A tremendous and still relatively unexploited latent potential is represented by the fabrication of components for the assembling of preschool buildings on the DSK assembly lines. The experience gained in the continuous-flow construction of cultural-communal facilities and preschools and creches in the Komi ASSR, Murmanskaya Oblast, and other areas, demonstrates the great advantages of using the housing construction combines to fabricate all the parts needed for comprehensive urban construction. This experience should be propagated as broadly as possible.

The Secretariate of the Trade Union Central Committee outlined concrete measures to improve the situation so as to apply a maximum of effort during the weeks still remaining before year end in order to assure the plan for the completion of construction projects. Not only previous omissions have to be repaired with the object of catching up, but also foundations for the future have to be laid.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

CONDITIONS NEEDED IN INTRODUCING THE ORLOVSKAYA UNINTERRUPTED PROCESS

Moscow STROITEL'NAYA GAZETA in Russian 12 Oct 79 p 3

[Article by No. Sugrobov, director of the Central Scientific Research Institute of Industrial Structures urban construction group: "Not in Parts But as a Whole; To Introduce Line Production in Construction for Two-Year Planning"]

[Text] Today the Orlovskaya "uninterrupted process" is being introduced in more than 120 cities, 60 of which are in the RSFSR and 32 in the Ukraine. In the Russian Federation an interdepartmental coordinating council in the RSFSR Gosstroy [State Construction] actively promotes this process.

Among the 120 cities it is possible to name quite a few where the concentration of resources at housing and cultural-service construction sites approaches 100 percent. Among these are Donetsk, Murmansk, Tula, Ryazan', Khabarovsk, Barnaul, Tambov, and Kaliningrad. The opinion was formed that at those places where this was successfully achieved the introduction of the new form for organizing construction did not encounter great difficulty. In reality it is exceedingly more difficult. A high level of concentrated resources is only one of the prerequisites for a transfer to uninterrupted planning and construction.

It is possible to name quite a few cities where the concentration of capital investments in the hands of a single client did not in and of itself achieve the expected effect. For example, in Bryansk, where the gorispolk UKS [Directorate of Capital Construction] has 80 percent of their resources at housing projects were put into operation during the first six months of the year. In Tula, where there was such a high concentration of capital investments, builders only managed to meet a third of the yearly program for turning over housing units between January and June. For the construction ministries mentioned only a third of the housing units erected in the country are being built according to the Orlovskaya method.

The spread of valuable knowledge is restrained most of all by discrepancies in planning tasks among clients and contractors. For example, for the current year the Volgograd gorispolk UKS planned to put into operation housing units having a total area of 312,000 square meters but Glavnizhnevolzhskstroy [Main Nizhnevolshsk Construction] accepted only 257,000 for the city. Another reason is the insufficient apportionment of resources for anticipatory work. For example this comprises only 60 precent of the norm for the Byelorussian Minpromstroy [Ministry of Industrial Construction]. Fragmentation in construction also gives rise to late preparation of construction sites and design documentation and providing sites with insufficient material technical resources which are not in conformity with the plans.

The above reasons are, to a well known degree, the result of insufficient development or the absence of long-range and five-year plans for the economic and social growth of cities as well as design technical documentation for the organization and complex execution of line production construction for projects designed for housing, cultural-service and communal use based on uninterrupted planning. Only 2[illegible] or the 110 cities examined have two-year calendar directive plans (schedules) for assimilating capital investments and for planning design-investigative work for housing and cultural-service projects.

This also speaks of the underestimation of the complex socialist competition among urban builders in a number of places. The facts testify that in those cities where collaboration agreements between architects and housing builders, competition on the principle of a "workers' relay race' and urban construction contracts are in force, they managed to better organize affairs, ensure the steady completion of the plan to put housing units into operation with a high quality structure, and to foster the sufficient amount of preparatory work in technical documentation. Such a situation was achieved in Donetsk, Zaporosh'ye, Dnepropetrovsk, Murmansk, Krivoy Rog, and Yaroslavl'.

Since the first of January of the current year, Gosgrazhdanstroy [State Civil Construction] implemented the "Instructions for the Organization and Complex Execution of Line Production Construction in Cities for Housing Units and Projects Designed for Cultural-Service and Communal Management Uses." When this normative document was issued a multitude of departmental instructions and statutes were repealed which have not only various titles and contents but also which propose various methods for introducing the "Uninterrupted process."

The value of these instructions (SN 508-78) consists most of all in the fact that for the first time it systematizes the complex of organizational, preparatory and construction work on the basis of new planning and management principles. The normative document defined the content of documentation which must consist of a complex consolidated graph schedule [KUSG] for the five-year and long-term period, and also of composite plans for the organization of construction (composite POSO for three years of the five year period and composite plans for production work at urban rayon buildings (composite PPR) for two years of the three-year period.

The necessity of developing documents in exactly this form and for such a period supports the practice of introducing the "uninterrupted process" in Orel. The fact of the matter is that the general plan and the designs for the detailed planning of housing ensembles do not contain information which directly applies to the organization of new or the reorganization of operating construction sites, but it is impossible to avoid it under the conditions of two-year planning.

Orel workers, the first in the country to complete the development of a directive schedule for line production construction for an entire city were able, by following it, to ensure the proper sequence for constructing projects, a uniform distribution of crews, the complexity and high quality of the structures and the preparation of the site and design-estimate documentation well in advance.

In Orel the general planner, with the participation of a single client and a single contractor, develops the directive schedules. Today systematic assistance may be rendered to the organizations which draw up the desing technical documents by TsNIIP [Central Scientific Research Institute of Industrial Structures] for urban construction, NIIOUS [expansion unknown] under NISI [Moscow Civil Engineering Institute] imeni Kuybyshev and also the Ukrainian Gosstroy NIISP [Scientific Research Institute of Construction Production].

Introduction of the "uninterrupted process" demands intervention on the part of directive agencies. In particular the USSR Gosstroy must approve the statute concerning the services of a single client and a single contracting organization, develop directions which define the interrelationships of the gorispolk UKS with collaborating organizations (the procedure for transferring funds for materials and equipment, design documentation, labor plans and limits of salaries for technical supervision, and so on) as well as single client's typical structure, staff and official rates of pay for services.

It is necessary for the USSR Gosplan and the USSR Bossnab to place the responsibility on a single contractor to provide housing and civil projects with materials and equipment excluding technological items, and at the same time free the gorispolk UKS from these functions.

And finally it is expedient to examine the question concerning the inclusion of indices when introducing the "uninterrupted process" in cities under socialist competition conditions which will undoubtedly accelerate putting the progressive method into practice.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

CARRYOVER CONSTRUCTION WORK INCREASING

Moscow STROITEL'NAYA GAZETA in Russian 21 Oct 79 p 2

[Article by I. Postnikov, chief of the Kuybyshevgidrostroy [Kuybyshev Hydroelectic Construction] planning section: "The Client is Applying Pressure"]

[Text] Since 1976 Kuybyshevgidrostroy's subdivisions began to transfer to the new management system. At present after three quarters of the total volume of work has been completed the client settles accounts with us according to the construction commodity output. This is for all housing units and projects designed for social-cultural use which were put into operation by us and more than half of the industrial structures.

After three years we saw with our own eyes the advisability of having annual production accounting. The duration of construction at a number of sites has been reduced, their costs have declined and profits are increasing.

However planning according to finished construction production has still not become the tool which could have made it possible to achieve a fundamental improvement in the work of Kuybyshevgidrostroy's subdivisions.

Today contract organizations have found themselves in such a position when the completion of tasks to turn over finished construction production does not depend on them. Thus, last year one of our largest trusts, Promstroy-2, completed 103 percent of the plan according to "production volume," yet the construction commodity output was only slightly more than half. They also managed to meet the quota for the increase in labor productivity. But no profits or funds for economic stimulation remained. However, this collective cannot be blamed for they were let down by the client--the Tol'yatti nitorgen plant management. As a result the trust turned out to be in the role of the guilty party but were guiltless.

Today a person could hardly be found in Kuybyshevgidrostroy who would be against planning and settling accounts for annual construction production. However, reorganization, in our deepest conviction, should begin with the client through an increase in their economic responsibility for putting sites and complexes into operation on time. A paradox really exists. The same Tol'yatti nitrogen factory builds with credit from the USSR Stroybank [Construction Bank]. The start-up of production operations on time are systemically frustrated through the fault of the client but Kuybyshevgidrostroy pays for the increased percentage for using the credit. The irresponsibility of the client was overcome by us only after three quarters of 1979 and 298,000 rubles were gone.

Good conditions for plan formation of commodity construction took shape in 1980. We received the title list drafts, which coordinate the contractor's labor plan with the design, on time from the clients. It seemed as if everything was normal. But when we analyzed the contents of the title lists line by line the picture sharply changed. The clients are again pushing us for a further dispersion of labor forces and means. This will lead to an even greater growth in incompleted production for next year.

On 1 September 1979 the incompleted production at Kuybyshevgidrostroy comprised 285 million rubles. We need about three years to complete already constructed sites without beginning any new ones. At the same time the contents of the title list for the Volzhskiy automobile plant stipulate the apportionment of 200,000 rubles at the structure for expediting automobiles while the remaining cost of construction assembly work for this structure is 4,818,000 rubles, and for the hotel 300,000 rubles with the remaining cost at 6 million rubles. For the 12 sites included in the title list the remaining volume of construction-assembly work comprises 33.6 million rubles, yet for 1980 slightly more than 2 million or 6.2 percent is planned for completion.

In 1980 we are obligated to complete construction assembly work for aggregate ammonia No 6 at the Tol'yatti nitrogen plant and turn it over for the start-up of operations. Ten million rubles are needed for this but the client is providing only 1.1 million. At the same time the erection of new structures are included in the title list and financing for carryover sites increased.

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CONSTRUCTION, CONSTRUCTION MAHCINERY, AND BUILDING MATERIALS

INSUFFICIENT LEGAL REGULATIONS FOR CONTRACTOR-SUBCONTRACTOR RELATIONS

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 2 Sep 79 p 2

[Article by V. Gnidenko, Sibmetallurgmontazh trust administrator: "Crash Work...According to Schedule: To Improve the Management Mechanism"]

[Text] These lines are being written based on my impression of the Party Central Committee and USSR Council of Ministers' Decree, "Concerning an Improvement in Planning and an Intensification of the Economic Mechanism to Increase Production Efficiency and the Quality of Work." It is difficult to overestimate its importance and significance because, as this document notes, the economic structure reached such a level when the further improvement in economic management acquired special urgency.

I have in front of me the labor plan for our trust Sibmetallurgmontash [Siberian Metallurgical Assembly Trust]. The production of carbamide which is to begin during the current year at the Kemerovo production association Azot is noted in it. By the first of January of the current year, the construction preparedness of the project comprised 10 percent in all. According to all existing norms it is impossible to include the start of operations for this large scale and complicated means of production in the plan with such an amount of anticipatory work. Yet it was written in for us even though it is impossible to turn out carbamide this year even theoretically speaking, and not merely according to the norms.

This, unfortunately, is not a rare occurrence. The authors of similar plans hope that we, the assemblers, by mobilizing a maximum amount of our work force and concentrating a large number of people and technicians at the construction site, will be able to decrease the time it takes to complete the work relative to the norms. More often than not this happens. But sometimes a concentration of the work force does not help. Let us assume for a minute that in order to accelerate the work we instructed several men to simultaneously drive in a single nail. They will only interfere with each other. And the work will not go any faster. The same thing happens, regardless of the technology of the work, when two to three times as many people are concentrated at a site to complete the work at any cost.

In the first paragraph of the CPSU Central Committee and USSR Council of Ministers' Decree it speaks of measures for increasing the level of planned work. And this is not by accident, for the quality of planning most of all determines the level of management activities. And today if many construction and assembly organizations cannot be commended for their labor achievements it is because their lag was frequently already predetermined at the plan formation stage. This regularity was looked into especially carefully among our assembly organizations.

Here is how plans for subcontractor organizations are formed in practice. The general contractor for the trust gives us the labor framework. Included in this framework are not only those items which will be included in the plan but also everything which the general contracting organization would like us to complete. And here is what this leads to. The plan for the construction sites at the Kemerovo production association Azot was not covered by the current year's financing. Our Sibmetallurgmontazh Trust had to complete more than one and a half million rubles worth of work for the year at one of them--the Ammiak-450 works. We sent the appropriate work force there and assimilated approximately 400,000 rubles but it turned out that the client refused to finance the work. In summary the completed work proved to be unplanned. It may be excepted by right since we do not have the right to work at sites which are not provided with financing.

In light of what has been stated the position of the party and government decree seems to us very important, in agreement with which the standard five-year plan for capital construction will be approved by balancing material resources and technological and power equipment against labor and financial resources and also against construction-assembly organizations' capacities. The pledge of smoothly operating labor at all sites and especially at starting sites is included in this.

The legislative basis on which the interrelationships between the general contractor and the subcontractor must be formed plays no small part in accelerating the initial operation of production capacities and in increasing the effectiveness of capital investments. This is one of the more acute problems for assembly organizations today because there are no legislative documents which make it possible to effectively influence the general contractor. We worked with Glavkuzbasstroy's [Main Kuznetsk Basin Construction] subdivisions for a long time. Many of them, as a rule, fulfill the plan with their own work forces. But while doing this they concern themselves very little with establishing a work front for assembly organizations on time. The time remaining for completing the total assembly work is sometimes three to four times less than the norm.

And the source of this, to say the least, abnormal situation has its roots in the practice of concluding contracts. As a rule the USSR Mintyazhstroy's [Ministry of the Heavy Construction Industry] general contracting organizations do not indicate the time period for turning over a working front and providing materials and equipment in these contracts. Usually the contract formula looks like this: construction readiness between "January and December" and deliveries of supplies according to the "client's schedule." If one considers that we receive the contract late in comparison with the established time period and that the bank begins financing only after it has been signed, the subcontractors find themselves in a hopeless situation. We must either sign that contract which was sent to us or undertake a useless rewriting of it with the general contractor and their higher organizations. It usually ends up that we sign the contract anyway with the wording which was used in the copy we received because one cannot work without financing.

Such a practice is extremely detrimental to the subcontractor. During the time period between "January and December" the subcontractor cannot turn to the State Arbitraror until the last day and on the first of January the contract is no longer legally binding. Thus a general contracting organization has the possibility of acting at his own discretion with complete impunity at the construction site without considering the demands and needs of subcontractors in a number of instances. One example stands out among the many examples which support this position. During the current year the start of kaprolaktam [raw material used in the production of synthetic fiber] production is planned for the same Azot production association. In order to complete assembly work at the site 150 km of pipe are still needed. No one is concerned about issuing them in the time period (in February or March) which is necessary due to the technology of the job. And we must actually rework these pipes into assembeled units beforehand and then mount them into place. Four months remain before the start of operations, but there are no pipes. And a specific guilty party cannot be found because the contract was cleverly drawn up.

The conclusion suggests itself that the interrelationships between the general contracting and subcontracting organizations cannot depend on someone's good or evil intentions and on the willingness or the unwillingness to take upon oneself specific obligations. They must be clearly and strictly regulated by legislative documents. A grid schedule, whose role must be increased, could serve to regulate purely production relations. It makes it possible to plan the beginning and end of all operations at the construction site with maximum accuracy--from the zero cycle or work to the turnover of the site for operations. A grid schedule indicates not only that sector of the construction job where a breakdown has occurred but also the party quilty of the breakdown. Under these conditions collective irresponsiblity, with which we sometimes come in contact, is eliminated.

Experience has shown that the practice of drawing up the arrangements (these make their appearance after the arrival of the ministers or deputy ministers) which indicate the volume of work and time necessary to complete it, the number of people and machinery necessary, deliveries of materials and equipment, does not justify itself. Not measures, but a precise program which may be produced only by well thought out, long-term, current and operative planning is needed.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

PROBLEMS IN CLIENT-CONTRACTOR RELATIONS DISCUSSED

Cost Accounting for Client-Contractor Relations

Moscow NA STROYKAKH ROSSII in Russian No 9, Sep 79 pp 24-26

[Text] One of the forms of specialization and cooperation in capital construction is a differentiation of functions between its basic participants--the general contractor and client organizations. Under present conditions the attainment of the final result of putting production capacities and sites into operation on time is ensured by the unified efforts of clients, general contractors and other organizations and enterprises.

Included in the category of clients are industrial enterprises and organizations from all of the ministries and branches in our country. Due to this, specially chosen executive agencies are engaged in capital construction problems within the industrial enterprise. These include UKS [Directorate of Capital Construction] and OKS [Capital Construction Section], the construction enterprise management and groups of specialists and distribution agents of their functioning subdivisions.

For example, at the USSR Ministry of the Chemical Industry enterprises in Dzerzhinsk in the Gorkovskaya Oblast the assistant director for general problems, along with the mechanization and automation shops, the outfitting division and the chief mechanic which are all subordinate to him, is engaged in construction together with the assistant director for capital construction and OKS. Workers in technical supervision groups for capital construction, administratively subordinate to the assistant director for capital construction, often are on an operating shop's staff. The client's dispersion function among the subdivisions and various execution enterprises is, in this manner particularly, characteristic of client organizations.

Industrial enterprises are working under complete cost accounting conditions as well as a new planning system and economic incentives. However, these conditions apply only to their basic activities.

Capital construction often comprises an insignificant portion of an enterprise's total volume of work and the economic effects on the whole are barely perceptible for them. The UKS's and OKS's and other execution agencies of the client do not by themselves possess operative planning independence, have not converted to a self-supporting system and do not have profitableness as their goal. The personnel of these subdivisions are given bonuses according to general procedures on a level equal to other plant management personnel based on the results of the basic activities of the enterprise. The absence of the proper material interest and responsibility on the part of the client's execution agency personnel who are carrying out capital construction, negatively affects the results of their work to a great degree and most of all the fulfillment of contract obligations.

The problems related to the purposeful economic stimulation of client organizations in coordinating the basic indices and results of their activities and the creation of material interest on the part of workers for the successful completion of contract obligations have not been solved to this day.

The notion is deeply ingrained that the basic blame for construction delays and incompleted work in putting sites and production capacities into operation falls on the contract organizations which is based on the externally visible appearance of things and does not correspond to the actual state of affairs in construction. An analysis of practices in the interactions and interrelationships between clients and contract organizations and the reasons for incompleted plans indicates that in 7 out of 10 cases construction delays and failures to start up operations on time are for the most part the fault of the client.

Thus, as a result of delays on the part of the Chernorechenskiy Chemical Combine imeni Kalinin in handing over title lists, technical documentation and construction sites to the Dzerzhinskiy Trust No 4 and compounded by their failure to deliver technological equipment on time, the trust did not complete on time its tasks for the Ninth Five-Year Plan of putting 19 industrial sites into operation at a cost of 88.7 million rubles. This resulted in a loss of 2.7 million rubles for the national economy.

In the last few years the BSSR Ministry of Industrial Construction and its organizations have been conducting a complex economic experiment for the further improvement in planning its production-management activities and for increasing the role of economic methods in their work. The goal is to accelerate construction and the time it takes to put production capacities and projects into operation. Industrial enterprises and client organizations are not participating directly in the experiment and are allowing, as before, gross violations in fulfilling the obligations which were agreed to in contracts.

The results of the BSSR Minpromstroy's work during the course of the first year of the experiment indicated, for example, that as a result of the client's failure to fulfill its obligations of turning over technical documentation and construction sites as well as delays in equipment deliveries, the plan to put the Bobruysk tire combine, the Mogilev synthetic fiber combine, the Molodechno machine tool factory and other sites into operation was not carried out. By the beginning of the following year clients did not provide technical documentation for the construction of industrial projects estimated to cost more than 200 million rubles and delayed the conclusion of contract agreements for long periods of time. In 1978, 35 industrial sites did not begin operations due to late deliveries of equipment. The BSSR Minpromstroy's contract organizations could have applied sanctions against the clients for not fulfilling contract obligations in the amount of 1,830,000 rubles, but they did not do this. In fact only 12,000 rubles or less than 1 percent were imposed as fines.

As a result of equipment delays the start-up of operations for the ammonia production shop at the nitrogen fertilizer combine in Tol'yatti was stymied.

The quality of the position of clients who act simultaneously as client and executor, stifles their initiative and limits the possibilities for applying monetary sanctions for not fulfilling contract agreements. As to the general contractors, they are compelled to refrain from applying sanctions since they fear receiving counter sanctions which are 2 to 3 times greater and sometimes even more. This explains the mutual refusal of client-organizations and general contractors to apply sanctions. As a result this important economic factor does not function.

Thus, at present the acute necessity of regulating the interrelationships between client and general contractor based on cost accounting has become pressing. One of the basic necessities of cost accounting is the creation of material interest on the part of the client's worker collective to fulfill the obligations which were taken on and to achieve the final results of the work which is to put sites and production capacities into operation.

Of great interest in this regard are measures to improve the interrelationships between the basic participants in construction which were tested in an experimental system at Glavvolgovyatskstroy's "Dzerzhinskiy" trust No 4 and the Chernorechenskiy Chemical Combine imeni Kalinin (the client). The basis of the experiment was the introduction of cost accounting in their interrelationships and a new system to stimulate the material interests of the client's personnel, the use of economic methods to control the interrelationship process, the reconstruction of work which had claims against it and the use of interrelated systems for agreements (including crew contract agreements), the organization of arbitration agencies on a public basis for reviewing disputed questions and others.

Before beginning the experiment a change in the structure of the client's apparatus was introduced (all workers were united into one subdivision headed by the combine's assistant director and they were given operative-management independence) and a system of economic stimulation was developed. Its basic conditions are the following:

The creation of a fund to stimulate material interest on the part of the client's staff of workers and to achieve this the use of allotments from the enterprise's means and special allocations to award bonuses to workers who have put sites into operation on time and ahead of schedule;

Incentives for workers to achieve the final results of construction production;

Incentives for the qualitative fulfillment of contract obligations on time;

The establishment of a worker's material responsibility for not fulfilling contract obligations; the material losses in connection with this to be born by the enterprise;

The amount of bonuses to be paid to workers must be linked to the sources of the bonuses and are not subject to limits.

Putting these measures into practice contributed to a significant improvement in the interrelationships between client and contractor, an increase in responsibility for fulfilling contract obligations and most of all for putting sites and production capacities into operation on time and an improvement in the organization of the client and contractor's interrelationships and coordinated work during the stage of organizational-technical preparedness for construction and the subsequent stages.

The complex of interrelated measures for regulating the interrelationships of client and contractor organizations which has undergone experimental testing is being introduced at present in client organizations and at construction jobs in the Gorkovskaya oblast.

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Regulation in Event of Design Change

Moscow NA STROYKAKH ROSSII in Russian No 9, Sep 79 pp 26-27

[Text] In accordance with the letter from the USSR Gosstroy, USSR Gosplan, USSR Stroybank [Construction Bank] and USSR Bosbank dated 11 March 1977 No 16 D/VI-12D/71/2466 together with the instructions, "Concerning the Application of the Regulations for Capital Construction Contract Agreements," measures for changing production methods are carried out by the contractor in all cases and are not subject to the client's approval.

In accordance with paragraph 45 of the Regulations, the client is obligated to inform the design organization which is developing the project of all suggestions by the contractor which are related to changes in design. According to the Instructions for developing designs and estimates for industrial construction which were approved by a USSR Gosstroy Decree dated 16 March 1976 No 23 (SN 202-76) and the Provisional Instructions for developing designs and estimates for housing and civil construction approved by a Gosgrazhdanstroy [State Civil Construction] Order dated 19 December 1969 No 261 (SN 401-69), the client and design organization introduce the changes in design which are related to the contractor's suggestions.

In case of changes based on a contractor's suggestions which are adopted while adapting a typical design to a specific construction site, the design organization which is carrying out the design adaptation introduces the corresponding changes into the design documentation. If the contractor's suggestions involve other parts of a typical design, changes are introduced in accordance with subparagraph "z" of paragraph 15 of the CPSU Central Committee and USSR Council of Ministers' Decree dated 28 May 1969 No 390.

The stated changes in design documentation are carried out at the contract organization's expense. The cost of construction for projects and individual types of work are not subject to change in connection with a contractor's suggestions (paragraph 11 of the Instructions).

Savings, which are still at the contractor's disposal and which were derived as a result of their implementing the measures stipulated in paragraph 45 of the Regulations, are counted against the estimate, which was agreed to and accepted by the contractor before beginning construction, for erecting individual structures or for completing certain stages of work (in cases where accountings are made between client and contractor after corresponding stages or work have been completed).

Savings, which are derived as a result of the same measures being implemented simultaneously at a number of sites, remain at the contractor's disposal only in those cases where the measures were implemented or where the contractor began to implement them during the course of the calendar year in which the contractor's suggestions were adopted (paragraph 12 of the Instructions).

The following are not considered as measures which are implemented by the contractor according to the procedure established by paragraph 45 of the Regulations:

a) a contractor's suggestions concerning changes in the design stipulated by the design-estimate documentation which was distributed due to drawing or dimensional errors in design or math errors in estimates;

b) a change in production methods and also material substitutions which are agreed to by the client, changes in a structural and other technical decisions which are stipulated by design-estimate documentation for the project and types of work, volume, methods for completing it and costs which cannot be determined with sufficient accuracy during desing and are determined during the process of construction; in connection with this, calculations are made in accordance with the system in force for the volume of construction assembly work which was actually completed according to the individual price and the price list for assembling equipment;

c) a change in production methods, material substitutions and changes in structural and other technical decisions during construction of temporary buildings or structures, for which the working drawings are being developed by construction-assembly organizations or at their request by the design organization and the construction of which is financed by means which are stipulated in chapter eight of the composite estimates (composite estimate-financing calculations);

d) a substitution of new progressive and effective construction forms, materials, parts, hardware, production methods, and technical decisions for traditionally well known or assimilated types of production which are less effective;

e) a reduction in the length of utility lines in connection with changes in the technical conditions for hooking them up due to sources and lines for electric supplies, communications, gas supplies, heat supplies, and water mains becoming more accessible to the construction site for reasons not dependent on the construction organization;

f) a change in special methods for work in mountainous areas (cementation, chemization, freezing, cofferdam);

g) a reduction in the volume of work and estimated cost of the mining work given in the approved design due to a determination of the geological conditions of the mine (hardness of rock, the conditions of existing strata, flooding, the existence of gas and others);

h) a change in the volume of construction and assembly work in connection with substitutions for general mining mechanisms and equipment which lower the estimated cost for general mining expenditures;

i) a reduction in the volume and cost of construction assembly work in connection with retimbering, repairs and maintenance of mining work;

j) a change in production methods for boring-blasting work and also for sinking wells for water (in land reclamation work) stipulated by the work production scheme developed by the contractor;

k) suggestions related to the application of design decisions, structures, materials or production methods which were earlier stipulated by design-estimate documentation before its approval and later altered by the contractor in written form during preparations for concluding the composite estimates for the technical-working design or during the stage when the construction organization comes to an agreement over the design as well as the estimates for construction of individual structures and types of work;

l) reductions in construction costs due to proposals by the personnel on the client's staff or the design organization's staff which is developing the design-estimate documentation for the construction site and also joint proposals by personnel on the client's and the design organization's staff. (The stated proposals are put forward by workers in the organization at their place of work and in those instances when they may be rationalized according to the procedure established by the Statute concerning discoveries, inventions and rationalization proposals approved by a USSR Council of Ministers' Decree dated 21 August 1973 No 584 while also taking into consideration the clarification of this decree by the State Committee for Inventions. In cases where these proposals are adopted the client is obligated, under paragraph 44 of the Regulations, to enter these changes into the earlier distributed design-estimate documentation according to the established procedure);

m) a suggestion by the contract organization concerning the expediency of erecting individual buildings or structures for which objective estimates are available (paragraph 16 of the Instructions).

In those cases where the work is accomplished by the subcontract organization according to agreements concluded directly with the client, the subcontractor coordinates these measures only with the client (paragraph 17 of the Instructions).

After measures are carried out jointly by the general contractor and subcontractor for that part of the work which was accomplished by each of them (paragraph 18 of the Instructions).

In addition it is necessary to follow the letter from the USSR State Arbitrator dated 8 Sep 77 No C-7/155 (see "Bulletin of Normative Acts by USSR Ministries and Departments" No 7, 1978 p 48).

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

RSFSR HOUSING AND CIVIL CONSTRUCTION PROGRESS REVIEWED

Moscow NA STROYKAKH ROSSII in Russian No 9, Sep 79 pp 58-59

[Text] On the Quality of RSFSR Housing and Civil Construction and the Work of Gosarkhstroykontrol' [State Architectural and Construction Monitoring] agencies in 1978.

The RSFSR Gosstroy has reviewed the question of RSFSR housing and civil construction quality and notes that, governed by the resolutions of the 25th CPSU Congress and subsequent CPSU Central Committee Plenums, construction ministries, departments and the Soviet of People's Deputies ispolkoms have worked to continue raising the level of quality of development of RSFSR cities and population centers. Many construction organizations and building materials and construction industry industrial enterprises are producing more new efficient building materials and progressive structures.

In a number of cities, steps are being taken to introduce two-year continuous planning and flow-line construction of housing and civil construction projects, which facilitates reducing the time involved in and improving the quality of construction and installation and the smooth start-up of facilities. Individual residences and public buildings have been built at a high urban-development level, as for example in Chelyabinsk, Kuybyshev, Krasnoyarsk, Ryazan', Murmansk, Pskov, Tol'yatti and Naberezhnyye Chelny.

Along with certain positive results in a number of cities and population centers of the Russian Federation, the quality of large-scale housing and civil construction still does not meet modern requirements. At many construction sites, construction production standards are low, violations of production norms and regulations are permitted, there are unjustified deviations from planning resolutions, and materials and items not meeting the requirements of state standards are used. Apartment complexes are not being built up in a comprehensive manner. There is considerable lag in the erection of cultural and personal-services projects, trade and public catering enterprises, in the construction of outside utilities and facilities, as well as in providing public amenities and landscaping.

There has been a scattering of capital investments and material-technical resources among numerous projects, resulting in construction duration significantly exceeding normative periods. This reduces capital investment effectiveness and leads to increased incomplete construction and poorer construction quality. Thus, the House of Culture at the Synthetic Alcohol Plant imeni 40th Anniversary of the Komsomol, in Ufa, has been under construction for more than 12 years and the city drama theater with 1,000 seats has been under construction for more than seven years. In Tyumen', the oblast library and the treatment center at the city hospital have been under construction since 1971.

The RSFSR Gosstroy recognizes the necessity for union and republic ministries and departments implementing housing and civil construction and for the autonomous republic councils of ministers, krayispolkoms, oblispolkoms and gorispolkoms to take steps to continue improving the quality of housing and civil construction, to develop the production base of construction organizations, and to increase the personal responsibility of leaders of construction organizations and enterprises for following construction norms and specifications, plans and state standards. The administrations (departments) for construction and architecture affairs and the state architecture-construction monitoring agencies have been instructed to strengthen their supervision of the quality of housing and civil construction, to exercise effective supervision of strict observance of established procedure for accepting buildings for operation and not accepting projects with unfinished or poor-quality work, to make extensive use of the rights granted them to levy financial sanctions against construction organizations and enterprises and send to the procurator and state arbitration agencies materials for bringing changes against responsible persons who have permitted construction defects.

Reducing the Estimated Cost of Construction.

After reviewing the results of the activity of RSFSR ministries and departments, autonomous republic councils of ministers, krayispolkoms, oblispolkoms, the Moscow gorispolkom and Leningrad gorispolkom to lower the estimated cost of construction by 3-5 percent for plans for enterprises, buildings and structures in 1976-1978, the RSFSR Gosstroy notes that they have done a great deal of work on approving and re-approving planning documentation for projects to be built in the 10th Five-Year Plan in order to lower costs within the established amounts.

While a number of ministries and departments have adjusted measures previously worked out, the autonomous republic councils of ministers, krayispolkoms and oblispolkoms, jointly with the RSFSR Gosstroy's Glavgosekspertiza, have continued developing and refining measures which will ensure a reduction in estimated construction cost in 1977-1980.

Much work has been done by the RSFSR Ministry of Procurement, RSFSR Ministry of Higher and Secondary Specialized Education, RSFSR Ministry of Land Reclamation and Water Management, RSFSR Ministry of the Textile Industry, RSFSR Ministry of Health, RSFSR Ministry of the Construction Materials Industry, RSFSR Ministry of Construction and Maintenance of Roads, RSFSR

Ministry of the Fuel Industry, RSFSR Glavneftesnab, Tatar ASSR Council of Ministers, Krasnodarskiy Kray ispolkom, and the Amurskaya, Kurskaya, Pskovskaya and Leningradskaya Oblast ispolkoms to reduce the estimated cost of construction; in 1976-1978, they achieved reductions of 3.4 to 6.5 percent in estimated construction costs.

During the first three years of the 10th Five-Year Plan (1976-1978), estimated construction costs were lowered by 1,535,700,000 rubles, as against 978 million rubles in 1976-1977, as a result of the work done. In 1977-1978, the reduction in estimated costs was 2.7 percent of the amount of capital investment in construction during that period and was due to more progressive planning resolutions, including the use of economical structures, improvement in volume-planning resolutions, increased density of development and reduced utility network length.

Among planning organizations, the Yuzhuralgiprobytprom, Sevkavgiprobytprom, Giprokommunvodokanal, Giproavtotrans (Sverdlovsk branch) and Giprodornii (Gor'kiy branch) achieved the best estimated construction cost reduction indicators in 1978 (4.9 to 9.0 percent).

However, insufficient work is being done to actualize such important measures as increasing capacities by renovating existing enterprises, raising the level of production specialization and consolidation, and using only standard and proven economical plans.

The RSFSR Gosstroy has outlined steps to eliminate the shortcomings noted, to improve the quality of reports being submitted, and to ensure unconditional fulfillment of assignments on lowering estimated construction costs.

Results of Meeting 1978 Assignments on Mechanizing Construction-Installation Work and Using Construction and Road-Building Machinery and Steps to Carry Out the 1979 Plan.

The committee has reviewed the results of fulfillment of the 1978 RSFSR State Plan of Economic Development assignments as they concern lowering expenditures of manual labor in construction and mechanizing and automating construction and installation work, both in the RSFSR as a whole, and in individual republic construction ministries and departments.

It was noted that in 1978, as compared with 1975, the base year, the amount of manual labor had dropped both in absolute terms and also per million rubles of construction-installation work. For the RSFSR as a whole, this reduction reached 33 percent for earth-moving work, 30 percent for loading and unloading work, 25.3 percent for concrete and reinforced concrete work, 19.2 percent for plastering and 27.3 percent for painting. Assignments were also met for output of basic construction machinery and for mechanizing and automating construction processes.

However, individual construction ministries and departments of the Russian Federation did not meet the plan assignments set for 1978.

Thus, construction maintenance organizations of the RSFSR Ministry of Housing and Municipal Services, based on results for the year, failed to meet assignments on reducing the amount of manual plastering and painting work and permitted an increase in the amount of work done by hand with concrete and reinforced concrete. Construction organizations of this ministry did not meet the output norms set for excavators, bulldozers and scrapers.

Construction organizations of the RSFSR Ministry of Construction and Maintenance of Roads, RSFSR Ministry of Land Reclamation and Water Management, and RSFSR Ministry of Housing and Civil Construction satisfactorily met assignments set for reducing manual labor in the basic construction jobs and construction machinery output norms. However, in spite of the results achieved, the rates of manual labor reduction in construction continue to be low.

The RSFSR Gosstroy has recommended that the ministries listed eliminate the shortcomings noted in using construction equipment and in meeting assignments on reducing labor expenditures in construction, that they work out steps to meet 1979 RSFSR State Economic and Social Development Plan assignments as they concern mechanizing construction and installation work, that they intensify supervision and increase the responsibility of leaders of peripheral organizations for construction equipment use and take steps to increase the shift index of basic machinery operation and reduce intrashift down time, that they begin introducing the Ipatovskiy method of organizing the operation of construction machinery and means of transport among machine operators and transport workers, and that they do everything possible to reduce the time involved in servicing machinery, improve construction equipment maintenance quality and the organizational forms of service on construction and road-building machinery.

We recognize the necessity that the RSFSR Ministry of Housing and Civil Construction continue organizing cost-accounting small-scale mechanization and machine-tool sectors and, on their basis, begin introducing mandatory technology and standard technology sets in order to reduce manual labor in painting, plastering and other finishing work, that it take steps to make up the lag permitted in 1978 in bulldozer output and increase the output of excavators and tower cranes in housing construction. It is necessary that the RSFSR Ministry of Housing and Municipal Services intensify its supervision of the use of construction technology and progress in meeting assignments on their output and on reducing manual labor in the main labor-intensive construction processes; it is necessary that the RSFSR Ministry of Construction and Maintenance of Roads introduce more widely the experience of comprehensively mechanized brigades to ensure the flow-line construction of roads, take steps to reduce intrashift down time for construction equipment, and intensify service quality control. The RSFSR Ministry of Land Reclamation and Water Management must take steps to increase the proportion of scraper earth-moving work as the machines which can reduce the cost of earth-moving work and work more actively to introduce automation at its enterprises.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

MOSCOW CIVIL AND HOUSING CONSTRUCTION

Moscow STROITEL'STVO I ARKHITEKTURA MOSKVY in Russian No 10, Oct 79 pp 2-4

[Article by N. Trofimov, First Deputy Chairman of the Moscow gorispolkom: "Perfecting the Construction Conveyor"]

[Text] As is the entire Soviet nation, Muscovites are working in an atmosphere of great political and labor upsurge to actualize the historical resolutions of the 25th CPSU Congress, subsequent CPSU Central Committee Plenums and the theses and conclusions laid out in the reports and speeches by Comrade L. I. Brezhnev, General Secretary of the CPSU Central Committee and Chairman of the USSR Supreme Soviet Presidium.

The first anniversary of the USSR Constitution has been celebrated by great achievements.

In carrying out the task set by the party of building quickly, economically and on a modern technical basis, party and soviet organs and economic organizations of the capital are conducting organizational and political work to meet the assignments of the 10th Five-Year Plan, to raise the level of construction production industrialization, specialization and concentration.

Each year, more than three billion rubles of capital investment is utilized in Moscow. The program of just the construction organizations of the Moscow City ispolkom system alone is two billion rubles.

Ways of further improving capital construction were outlined in the resolutions of the 23rd Conference of the Moscow CPSU organization and in the report by Comrade V. V. Grishin, CPSU Central Committee Politburo member and First Secretary of the Moscow City CPSU Committee.

The Moscow City Committee Plenum held in September 1978, at which the question "Tasks of the Moscow City Party Organization to Carry Out the Resolutions of the 24th CPSU Congress, the December (1977) CPSU Central Committee Plenum, and the Instructions and Recommendations by CPSU Central Committee General Secretary L. I. Brezhnev in the Area of Capital Construction and Ensuring Fulfillment of the 10th Five-Year Plan and Socialist Obligations on Construction in Moscow" was discussed, was of important significance to developing and improving this branch in the capital.

In improving the city's construction conveyor, the Moscow City Committee and its ispolkom are orienting the labor collectives of architects, builders, construction industry workers and customer organizations towards greater capital investment effectivesess, ensuring continued growth and up-dating of fixed assets, improving the planning and organization of construction production, and lowering construction costs.

Recently, a number of problems have been reviewed and steps aimed at further improving the quality of housing, cultural- and personal-services construction project planning, at the prompt start-up of construction projects, accelerating utilities installation, creating the necessary stocks for building housing, and increasing the capacities industry has for producing Unified Catalog items have been taken. Much is being done to accelerate the construction of Olympics facilities.

The Moscow City Planning Committee and the construction main administrations are paying more attention to balancing the levels of construction-installation work against the capacities of construction organizations and the opportunities construction industry enterprises have, to concentrating forces and capital investments at start-up and carry-over projects. As a result, up to 70 percent of the current annual amount of capital investment has been directed into financing just such projects.

The proportion of construction-installation work among all capital investment has dropped from 63.3 percent on average during the Ninth Five-Year Plan to 56.9 percent this year.

A number of practical economic experiments have been conducted in construction and the construction industry to determine improved methods and indicators for planning and evaluating the work of enterprises and organizations. The Glavmosinzhstroy has successfully concluded an experiment in transferring all its subdivisions to planning on the basis of finished commodity construction output, with payment for completely finished work; the Glavmospromstroymaterialy has concluded one on introducing "net output" indicators.

In order to further improve long-range planning today, a plan has been worked out for the 11th Five-Year Plan for siting housing, industrial-production, cultural and personal-services, road and transport construction and for the engineering preparation of sites.

A production and construction plan is now being worked out for that period for housing, schools, preschool institutions and municipal-services and personal-services projects. All this will permit the prompt preparation of construction production along all lines and the advance engineering preparation of areas to be built up.

Work is being done to expand the functions of the GlavUKS [capital construction main administration] as the sole customer for housing, cultural, personal and municipal-services construction, which will make it possible to specialize the customer's subdivisions according to type of construction, to use capital investments more effectively, and to simplify the calculation system.

The construction industry's production base is being developed and strengthened. House-building combines and building materials industry enterprises are being renovated and retooled. Individual plants have been switched over entirely to producing standardized Unified Catalog items.

As a result of improvement in the planning and organization of all construction production, a higher level of industrialization, growth in the capacities of construction organizations and development of the production base, we have basically ensured that the ever-growing amount of construction and installation work in the city will be done.

As is known, capital investments of 17.6 billion rubles, or 25.5 percent more than in the preceding five-year plan, were allocated to develop the national economy of Moscow in the 10th Five-Year Plan. But probably the most responsible period will be carrying out the program for the fourth year of the five-year plan and the first half of 1980.

Construction organizations are faced this year with ensuring the start-up of the Olympics facilities and in early 1980 with concluding the entire complex of measures to prepare the city for and hold Olympiad-80. During this same time, it will be necessary to carry out established plans for producing housing, schools, kindergartens, public health facilities, a large number of enterprises of trade, public catering, fruit and vegetable storage, personal and municipal services, and other projects of important significance to further development of the city without reducing the total amount of such construction. Successful completion of the 1979 program will enable us to create a good foundation for carrying out the 10th Five-Year Plan as a whole.

In evaluating the multilevel complexity and importance of these tasks, the Moscow City Committee, the Moscow Soviet of People's Deputies ispolkom and the main construction administrations are working to ensure unconditional fulfillment of plan assignments and socialist obligations.

Over the first eight months of this year, all the main construction administrations coped with assignments set for overall volume of construction-installation work and for the production and marketing of construction structures, materials and items. Some 548,000 m^2 of industrial-production, study-laboratory and engineering premises has been put into operation.

We have built 2.2 million square meters of housing and put up 21 schools, automated telephone exchanges, more than 100 stores, public catering and municipal services enterprises.

Underground pedestrian crossings have been put into operation at the "Aeroport" subway station and on Mira Prospekt and the Leningradskiy Prospekt double-thoroughfare from Begovaya Ulitsa to "Sokol" subway station. The Sadovoye Beltline sector along Valovaya Ulitsa has been rebuilt.

Builders have coped with the plan for the first eight months in terms of installing roads, water mains, sewage and gas lines. Much has been done in the area of public amenities and landscaping, of preparing the city for winter.

On the whole, the Olympics construction program is being carried out successfully. Some 13 facilities, including Central Stadium imeni V. I. Lenin, the equestrian center at Planernaya Station, Young Pioneers Stadium and the Olympic Television and Radio Center in Ostankino, were put into operation for the 7th Summer Spartakiad of Peoples of the USSR.

Control, communications, radio and television facilities and systems have been installed and tested at existing sports complexes and facilities which will be used for the Olympic Games.

The 7th Summer Spartakiad of Peoples of the USSR demonstrated that all the sports facilities used for the competition meet the highest requirements of the International Olympic Committee and of international sports organizations.

At the same time, the Moscow Soviet ispolkom and the main construction administrations are still faced with a great deal of work on improving capital construction and carrying out the resolutions of the 23rd city party conference. The level of this work must be measured today against those demands contained in the CPSU Central Committee decree on further improving the management mechanism and the tasks of party and state organs, as well as the CPSU Central Committee and USSR Council of Ministers decree "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Improving Production Efficiency and Work Quality," with the tasks presented in Comrade V. V. Grishin's report at a meeting of the Moscow city party organization aktiv which outlined a concrete program to carry out these most important party instructions.

Of great concern is the fact that many construction subdivisions are operating tautly and unevenly, are not coping with assignments in terms of certain indicators, and have failed to start up a number of city economy projects promptly.

Individual facilities are being put into operation with considerable disruption of schedules and with poor-quality work. At a number of projects, construction production standards are low and there are quite a few shortcomings in organizing worker labor. There are interruptions in material-technical supply and personnel turnover is still high.

As concerns perfecting the entire construction conveyor, we must first of all achieve continued improvement in capital construction planning. However, its level in main construction administrations does not fully meet modern requirements.

Planning shortcomings have a substantial influence on construction organization and on meeting set assignments. As previously, the inclusion in construction plans of projects not provided with documentation, needed resources or engineering preparation is being permitted.

More than 70 percent of the industrial projects and the cultural-, personal- and municipal-services buildings whose construction has been entrusted to the Glavmospromstroy and Glavmosstroy are scheduled for release to customers at the end of the year. Responsible workers of the Glavmosstroy, Glavmospromstroymaterialy, Glavmosinzhstroy, Glavmosmontazhspetsstroy and Glavmospromstroy are largely concerned with day-to-day affairs and are not paying the proper attention to long-range planning, practical introduction of new and advanced planning, and economic experiments.

When annual plans are being developed, they do not display the necessary persistence in defending the interests of the construction organizations, as a result of which a serious situation has developed with regard to providing general-contractor trusts with started-project construction. For example, the amount of started-project construction in the Glavmosstroy is only 15-20 percent of the total work volume, given a norm of 38-40 percent. In 1978, only 89 percent of the zero cycles to be started-project construction in 1979 were begun; subsurface utilities were laid at only 75 percent of them, which was naturally reflected in the evenness and effectiveness of that main administration's work.

The programs of individual construction trusts are overloaded and do not correspond to the changed structure, labor-intensiveness and actual capacities of their subdivisions. Project-list work volumes in individual trusts of the Glavmosstroy and Glavmospromstroy, as for example, "Stroitel'" and Mosstroy No 16, exceed planned volumes by 25-30 percent.

Insufficient attention is being paid to increasing the responsibility of construction subdivision leaders for unconditional fulfillment of established construction-installation work plans, as a consequence of which changes in the construction programs are permitted practically throughout the year. Addresses are changed in the schedules for putting projects into operation. This leads to serious violations of plan discipline and in providing structures and materials in sets; it generates a lack of responsibility on the part of construction organizations for putting projects into operation and causes increased unfinished construction, the amount of which is decreasing slowly in construction main administrations.

Newly begun projects still occupy a significant place in construction organization programs. The scattering of means among numerous construction sites also leads to longer construction times.

One of the most important tasks today is to increase plan discipline in all construction links, to make plans feasible, substantiated and coordinated with the capacities of construction industry organizations and enterprises, as is required by the CPSU Central Committee and USSR Council of Ministers decree on improving the economic mechanism and planning.

Construction must be planned for contractor organizations and customers on the basis of a unified system of indicators, of finished projects and start-up complexes released to the customer.

Now only the Glavmosinzhstroy is operating under this system. This work is being done slowly in the Glavmosstroy, Glavmospromstroy, GlavUKS and GlavAPU [Main Architectural Planning Administration of the City of Moscow]. It must be done more actively and completed in the current five-year plan.

At the same time, the Moscow City Planning Committee and Department of Construction and Building Materials, jointly with the main administrations, are faced with working out proposals on increasing the effectiveness of all economic levers and incentives.

The bonus system must stimulate the work of each participant in the construction conveyor, including subcontractors, to produce the end product of construction, putting projects into operation. Their material encouragement must be made directly dependent on the start-up of projects and complexes, on labor efficiency and quality, on meeting plan assignments, and on production activity results.

An important sector of the construction conveyor is improving the activity of the GlavAPU and all estimate-planning work in the city. It is these very plans which contain the resolutions, materials and structures which predetermine the labor-intensiveness of putting up buildings and facilities and which determine the quality of housing, industrial complexes and engineering facilities.

However, there are quite a few shortcomings in this work. The GlavAPU has been working unjustifiably long on plans to renovate the city's main arteries, squares and city ensembles.

The release of new building plans using panel structures for construction of vocational-technical schools, trade and public catering enterprises, is lagging. Little use is being made of subsurface space to install municipal-services and transport facilities.

In a number of instances planning norms and regulations have not been followed, excesses have been permitted, and expensive materials have unjustifiably been included in plans, including metal and aluminum structures and natural stone items. Insufficient use is being made of finishing materials which have been mastered by industry, in which connection much labor-consuming work has to be done at construction sites.

The proportion of fully prefabricated construction in the city today is over 90 percent. At the same time, there are still few industrial partitions, finishing materials and prefabricated elements, including factory-ready items. The potential of the Unified Catalog is being used by no means fully.

In accordance with the CPSU Central Committee and USSR Council of Ministers decree on questions of perfecting the economic mechanism and improving planning, in order to ensure capital construction plan continuity and greater customer and contractor responsibility, it is anticipated that the plan will include only those construction sites for which approved estimate-planning documentation and blueprints for the year's work volume are available on 1 July of the year preceding the planning year. In this connection, the GlavAPU and GlavUKSU [not further identified] are faced with ensuring the prompt issuance of this documentation and its transmittal to construction organizations. At the same time, steps should be outlined and effected to improve the architectural, technical and economic level of planning resolutions, to produce high-quality estimate-planning documentation which is detailed, economical and simple to produce.

Increasing capital investment effectiveness and reducing construction time are inseparably linked to prompt engineering preparation of sites, to regulating the sequence in which a territory is built up.

Resolution of these tasks depends largely on the activity of customer organizations, and foremost on the GlavUKS. Unfortunately, there are still quite a few instances in which this main administration is late in transferring construction sites and in issuing estimate-planning documentation. And its technical supervision of the course of construction is inadequate.

One shortcoming in GlavUKS activity is the low level of day-to-day and long-range planning, poor coordination of the plans of all main administrations and for all types of construction, and poor-quality development of construction plans. One example would be the forced reduction in housing construction this five-year plan in Orekhovo-Borisova due to the lack of transport for this highly built-up region.

The GlavUKS is achieving inadequate prompt development of detailed plans and plans for building up new large-scale construction developments from planning organizations and is failing to ensure outstripping engineering preparation of sites in such regions as Mar'ino and Vostochnoye Degunino. The main administration and its subdivisions are permitting, in this regard, a lack of coordination between engineering-supply levels and the start-up of housing, cultural- and personal-services facilities.

A disproportion has now developed in meeting the need for capital investment to develop the city's engineering equipment and road and bridge construction, but the GlavUKS has not taken the steps necessary to eliminate this discrepancy.

The main administration for capital construction, jointly with the GlavAPU, has thus far not coped fully with the task of ensuring the comprehensive build-up of the city. Imbalance between the construction of housing, cultural-, personal- and municipal-services facilities and the number of jobs available is creating definite difficulties for those living in the housing developments being built up now, especially in Otradnyy, Medvedkova, Teplyy Stan, Strogino, and so on.

We have not finished concentrating means for city construction at a single customer, the GlavUKS. The city now has about 300 organizations still acting as customers for construction of housing and cultural- and personal-services facilities. This definitely has a negative effect on ensuring the comprehensiveness with which areas are built up; it complicates the engineering preparation of new construction areas and leads to the scattering and diversion of material and labor resources among numerous construction sites.

This main administration is doing little to accelerate the introduction of industrial large-panel structures into practical Moscow construction or the development of new plans for housing, schools, children's preschool and medical institutions, dormitories, hotels, administrative buildings, or trade and public-catering facilities.

Its subdivisions are working insufficiently closely with administrations of the Gosarkhstroykontrol' as regards searching out the most effective forms of technical supervision at construction sites; joint proposals are not being made on improving construction quality and perfecting the work of state commissions for accepting facilities for operation.

The leadership of the GlavUKS must continuously increase the responsibility of its subdivisions for the status of construction, more actively influence the development of construction siting plans and ensuring that they are economical, and ensure fulfillment of the plan for utilizing capital investments, solving plan balance questions and problems of loading construction organizations evenly, the smooth start-up of projects, and creation of the normative number of projects in progress.

There are substantial shortcomings in the work of building materials and construction industry enterprises. Problems of renovating and retooling plants and combines, of raising the level of industrialization and the factory readiness and degree of prefabrication of items, are being solved slowly in the Glavmospromstroymaterialy and Glavmosmontazhspetsstroy.

The requirements of city construction organizations for a standardized frame, metal and aluminum structures, nonmetallic materials and parts for engineering equipment, brick and other needed construction items and materials are being incompletely met.

The attainment of outstripping rates of production of industrial output as compared with growth in the amount of construction-installation work depends largely on the effective use of fixed production assets. At the same time, insufficient work is being done to utilize capacities at a number of reinforced-concrete products plants, the Moscow Reinforced Pipe Plant, the No 2 ZhBK [reinforced concrete combine], No 5 DOK [woodworking combine], the Golitsynskiy Ceramics Plant of the Glavmospromstroymaterialy, associations of the Mosmetallokonstruktsiya and "Mossantekhprom" and the Glavmosmontazhspetsstroy.

Introduction of a comprehensive quality control system is being done inadequately actively.

Efforts of collectives of the Glavmospromstroymaterialy and Glavmosmontazhspetsstroy must be directed towards utilizing new types of items and materials and highly productive machines and machinery as quickly as possible. This work must be set up on a base of long-term programs which anticipate planned improvement in technical-economic indicators and the prompt replacement of output not in demand in the city.

Continued improvement in housing and civil construction quality is inseparably linked to the changeover to erecting housing made of standardized Unified Catalog items, to withdrawing obsolete buildings series from production. However, work on re-equipping prefabricated reinforced concrete enterprises is being done slowly. The changeover of enterprises to the production of standardized items for cultural- and personal-services facilities has thus far lagged behind the planned schedules.

As before, providing city construction projects with complete sets of items and parts is a sore point. The delivery schedules being worked out by the Glavmospromstroymaterialy are imperfect, not well thought-out, and not properly coordinated with the work of construction and motor-transport organizations.

We should also note the fact that there is no such schedule at all in the Glavmosmontazhspetsstroy and that this generates a certain lack of discipline among leaders of subordinate enterprises and influences construction schedules and the start-up of projects.

The system of orders for materials, items and structures for standard buildings and facilities has outlived its usefulness. Things must be set up in the organizations of these main administrations so that the output produced is delivered in strict conformity with the flow-line construction schedules under which the construction main administrations are operating.

Leaders of the Glavmospromstroymaterialy and Glavmosmontazhspetsstroy should considerably improve the provision of complete sets of engineering items and parts, coordinate the actions of industrial enterprises with city construction sites, and organize the production of industrial output and its delivery to the projects. They are faced with increasing the degree of prefabrication and consolidation of building and facility elements and the level of factory readiness of items and parts, with in the final analysis calculating not for individual parts and structures, but for construction end product. In this regard, a situation must be achieved in which building materials arrive at construction sites in a strict technological sequence, in which connection stronger steps should be taken to increase the material and economic responsibility of construction industry enterprises.

The growing amounts of capital construction and solving the complex socioeconomic problems of developing the city demand continued perfection of the organizational structure of construction production management.

The existing system of capital construction management is complex, multistaged and multiform. The activity of construction organizations of the Moscow City ispolkom is carried on basically within a four-link management system.

The Glavmosstroy, Glavmospromstroy, Glavmosinzhstroy and Glavmosmontashstroy are paying insufficient attention to specializing production and consolidating lower-level construction organizations. The creation of construction and production associations is being done without the proper scientific and economic substantiation, sometimes by mechanically merging construction and specialized administrations, trusts and construction industry enterprises.

Thus, the Glavmosstroy has an association for building schools and children's institutions. Practice has shown that it was created without the needed capacities and resources and production base, with an annual work volume of 60 million rubles. Such an association is naturally in no position to carry out independently all its work in a complex, in which connection the Glavmosstroy has been forced to draw other trusts into its projects. The association has been consistently unable to cope with plan assignments for the construction and start-up of cultural- and personal-services facilities.

Many problems have not yet been solved in the No 2 construction planning association and housing construction association of the Glavmosstroy and the No 1 construction-installation association of the Glavmospromstroy.

The programs of individual general-construction trusts of these main administrations contain new structural changes each year in industrial, housing, cultural-, personal- and municipal-services construction. In this regard, a program change by type of construction is not generally coordinated with the economic indicators production subdivisions have achieved. The current construction management structure is oriented towards the massive build-up of a limited products list of buildings and facilities on unused sites.

The structure and functions of individual Glavmosmontazhspetsstroy subdivisions are far from perfect. It cannot be considered correct that a main administration called on by its designation to be responsible for manufacturing, installation and adjustment is concerned, for example, just with producing switchboards and certain other output while installation is done by construction organizations. The full amount of these kinds of work must be done by Glavmosmontazhspetsstroy subdivisions.

There are also quite a few unsolved problems in the Glavmospromstroymaterialy. All this causes strain in the work of construction and planning organizations and generates construction unevenness, disruptions in capacity and facility start-up schedules, and a lowering of economic indicators in construction.

Construction main administrations must accelerate the development of general management plans which anticipate a changeover to two- and three-link management systems, the creation of large territorial-complex type construction and production associations with complete work cycles, that the steps necessary to increase the capacities of the construction organizations will be taken, especially for foundation-laying trusts, in order to ensure unconditional fulfillment of plan assignments by each construction subdivision and at each project.

Leading methods and forms of labor organization play a significant role among the factors directly influencing increasing construction efficiency and labor productivity. They are widely known, but still their dissemination is not being given the proper attention.

Everyone is now well-aware, for example, of the great advantages attained by collectives using the brigade cost accounting method. However, it is not being used everywhere to increase construction production efficiency. In the Glavmosstroy, such brigades do only 41 percent of all the work with their own efforts. Things are considerably worse in the Glavmospromstroy and Glavmosinzhstroy.

Organizing the work of construction collectives using the brigade contract method depends to a certain extent on the quality of estimate-planning documentation, especially in industrial construction. This circumstance must be taken into account by organizations of the GlavAPU. The documentation they issue for projects and facilities must delineate in advance the construction stages or the complexes for which contracts can be taken. On the other hand, customer organizations and construction main administrations themselves must display more initiative and interest in this problem.

Leading labor organization methods and forms must find broad application at city construction projects. In this regard, it is important to support in every way possibile the initiative of the labor collectives, to develop their creative activeness and ensure conditions for highly productive labor, for fulfilling and overfulfilling plan assignments.

The introduction of new equipment, proposals and developments by scientific research institutes has a great impact on perfecting construction. However, the organizational-technical measures and plans for developing and introducing new equipment which have been worked out by the main administrations are not being carried out fully. In particular, assignments for producing and introducing large-diameter reinforced concrete pipe, reinforced concrete piling components, using sidewalk slabs, building cultural- and personal-services buildings out of large parts, and raising machinery shift indexes are being met unsatisfactorily. But even those measures which have been introduced have not yielded the desired impact and are doing little to influence labor productivity growth. Construction main administrations must work in this direction more purposefully and persistently.

Problems connected with equipment use and increasing its efficiency require immediate solution. The repair base of the construction main administrations requires further expansion. The work of the Glavmosmontazhspetsstroy's

Mosremstroymash association in servicing construction equipment and producing spare parts needs fundamental improvement.

All sectors of the construction conveyor are important and today's task is to achieve continued improvement in the work of all links of construction in order that its efficiency and quality will be significantly increased.

The construction main administrations of the Moscow City ispolkom are directing their efforts, knowledge, experience and energy towards marking the October Revolution holiday with new accomplishments. Under the leadership of the Moscow City Party Organizations, builders in the capital are fully resolved to cope successfully with the tasks set them and to make a worthy contribution to carrying out the resolutions of the 25th CPSU Congress and taking steps to transform Moscow into a model communist city.

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